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THE

# MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—9TH YEAR.

SYDNEY: SATURDAY, MARCH 18, 1922.

No. 11.

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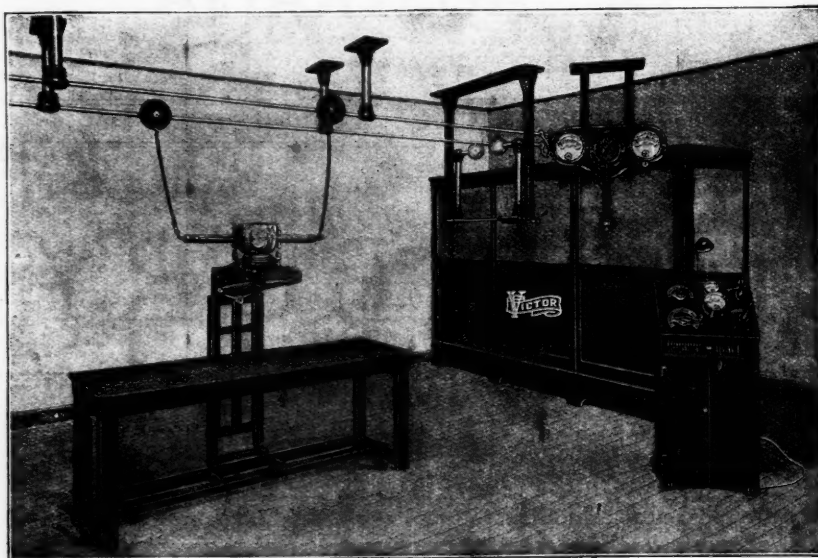
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### INFANTILE MORTALITY IN NEW SOUTH WALES.<sup>1</sup>

By J. S. PURDY, D.S.O., M.D., C.M. (ABERD.), D.P.H. (CAMB.), F.R.S. (EDIN.), F.R.SAN.INS.,  
*Medical Officer of Health, Metropolis of Sydney.*

A PROGRESSIVE decline in infantile mortality is considered to be a sensitive index of progress in the social condition and the evolutionary stage in civilization of a nation.

The present generation has witnessed almost the entire disappearance of typhus fever. Small-pox has practically been stamped out in those countries which have made vaccination and re-vaccination compulsory. Tuberculosis has been reduced in its incidence in English-speaking countries by more than half during the past fifty years.

In 1912, at the Congress of the Australasian Association for the Advancement of Science, in a paper on "The Reduction of Typhoid Fever in Australasia," I pointed out that since the introduction of the *Public Health Act, 1875*, in England there had been a reduction of the typhoid fever death-rate by one-third and it was then as low as 6.2 per 100,000 in Scotland. In Australia the typhoid fever death-rate, which is an excellent criterion of sanitary progress, fell from between 40 and 65 per 100,000 for the ten

years previous to 1890 to 15 per 100,000 for the five years before and including 1910, whilst for 1920 it was as low as five per 100,000, a reduction to a thirteenth in forty years. This is largely attributed to improvement in water supply, sewerage, improved dry conservancy systems and a purer milk supply.

#### General Statistics.

When we come to analyse the figures with regard to infant mortality, one of the chief causes of which—diarrhœa and enteritis—is as to its origin somewhat akin to typhoid, it is found that until quite recently there was no improvement.

Thus, taking the annual mortality of infants under one year of age to 1,000 births, we find little change during the latter half of last century. For the first ten years of the latter half of last century in England the infantile mortality was 154, whilst for the last ten years of last century it was also 154, that is, it was stationary, whilst at the same time the actual decline in the general death-rate during the periods was from 22.2 per 1,000 to 18.2.

During the first decade of the present century there was quite a revolution with regard to the subject of infantile mortality, not only in the British Empire, but in most civilized countries.

Attention was largely focussed on this subject by the realization of the modern phenomenon of a declining birth-rate.

It was shown in England that the natural increase

<sup>1</sup> Read at a meeting of the New South Wales Branch of the British Medical Association on December 2, 1921.

of population or excess of births over deaths was the same in the decennium 1891-1900 as in 1851-1860. Indeed, in France in 1907 for the first time in the history of any country, actually the deaths exceeded the births. In 1875 the population of Germany surpassed that of France by 6,000,000, in 1914 at the outbreak of war by over 20,000,000. In 1913 I stated in an address to the Health Society, Sydney, that there would be in twenty years two Germans for every Frenchman, "France," according to M. de Foville, "as a nation was slowly but surely dying and was marching with quickened step to her doom." As to the causes, the President of L'Académie des Sciences Morales et Politiques contended that they were political and economic as well as moral. "The law was lax in regard to certain criminal practices; it has made divorce ridiculously easy and it winked at pernicious teachings. Nothing, in fact, was then being done to arrest the gradual extinction of a great race." The war has altered that attitude and now we see that brave nation which won the palm for gallantry and devotion even unto death, encouraging in every way the renaissance of the nation by the protection of its motherhood and the care of its children.

Although England is not in such a sorry condition with regard to the natural increase, yet the problem of national importance, more especially with regard to the development of our vast Empire, is undoubtedly one of population, its increase and distribution. More especially is the subject one of great interest to Australians, who have to face the problem of peopling their vast continent. Sir Joseph Caruthers's recent call is no longer the voice of one crying in the wilderness: "A million farmers for a million farms!"

Public opinion is recognizing the need for encouragement of healthy, virile immigrants to come to this great continent. It is, however, chiefly to natural increase that we must look for our increase

of population. It is now only a commonplace to re-echo the aphorism that: "The best immigrants are children born and bred in the country."

Dr. Harvey Sutton's research into the height, weight and other physical characteristics of school children has demonstrated that the longer their progenitors have lived in the land as Australians, the better their progeny physically. Certainly, if prowess in the field of war or of sport counts for anything, the young Australian and New Zealander need not be ashamed to meet the stranger, either within or without his gates.

#### The Birth-Rate.

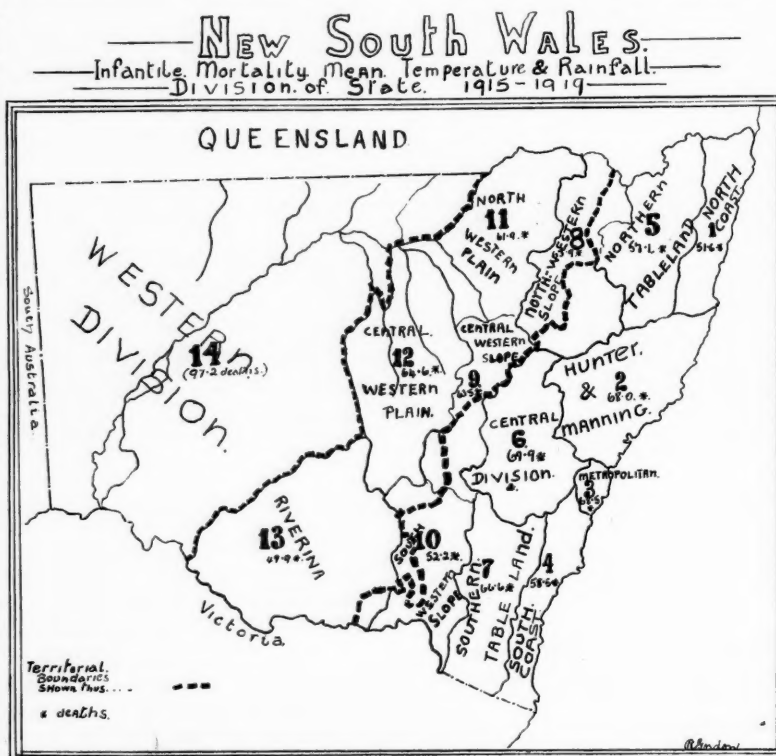
With regard to the birth-rate, this is largely a question dependent on social and economic questions, such as the later age at which people marry, the limitation of the number of children, the cost of living, etc.. Certainly any movement to encourage early marriages, such as the provision of facilities for building houses and reducing the cost of living, are worthy of encouragement, as is also any attempt to get people to leave the cities and settle on the land.

Apart from humanitarian reasons, however, from an economic and national

point of view it behoves us to keep down as far as possible the great drain which annually occurs from the death of infants, the greatest source of loss to the nation.

It is refreshing, therefore, to realize that there has been a great improvement with regard to infantile mortality in recent years. To quote from the Annual Report of the Registrar-General, England, for 1909:

It is interesting to note that the mortality of children under five years of age, which, during the nineteenth century had declined less than that of any other age-groups of children or young adults and in the last decade of the century showed an actual increase in both sexes, has during the present century declined more than that of any other group.





Without in any way wanting to minimize the effect of improved general sanitation, as represented by purer water supplies, sewerage and a better milk supply, it is worthy of note that the decline in the death-rate at ages under five and more especially among infants under one, synchronizes with the cru-

cer of the now defunct Local Government Board, England, when Health Officer for Brighton in 1905, commenting on an infantile mortality rate of 134, stated that, until the infantile rate was at least one-tenth of the births, it could not be held to be satisfactory.

# New South Wales 1920. Monthly Incidence Diarrhoea & Epyteritis (under 2 years)

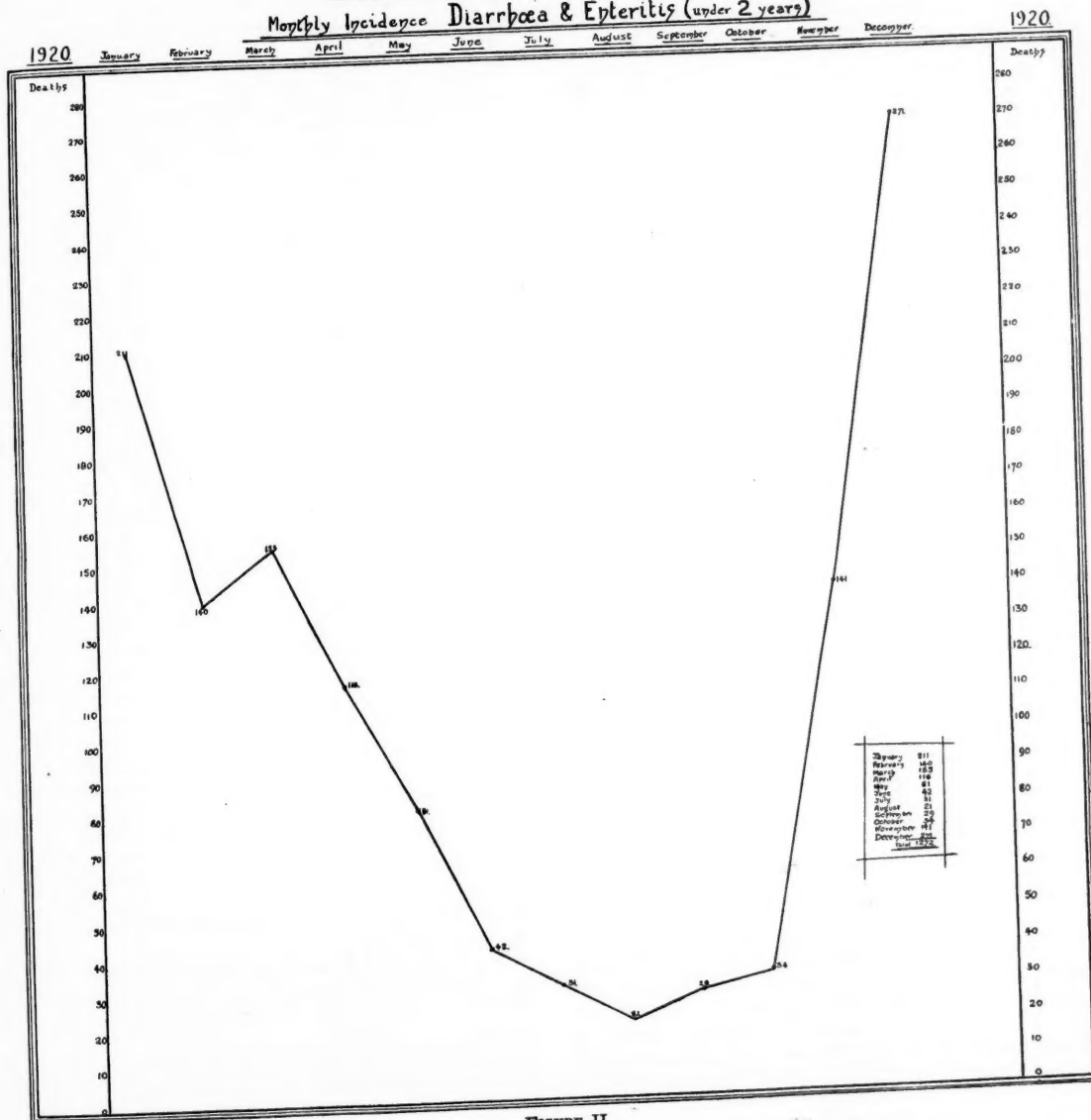


FIGURE II.

sade which has been almost universally preached and the work undertaken to secure the better feeding and nurture of infants.

As showing the opinion with regard to what was considered a reasonably low death-rate among infants, Sir Arthur Newsholme, the last medical offi-

## Infantile Mortality.

We can congratulate ourselves in the Australian States and New Zealand on much lower records. In Australia the figure has been reduced from one-tenth to one-sixteenth and in New Zealand to one-twenty-fourth. It is interesting to note that the rate in

our future capital—Canberra—is only 31 per 1,000, a splendid augury as to the general healthiness of what should become a model city.

An examination of Australian vital statistics shows that the general improvement with regard to infantile mortality had commenced earlier than in the homeland and dates from 1881 to 1894 and 1895, when there was a slight retrogression till 1896, from which date onward there has been continued and marked improvement, that is to say, a rapid falling off in the rate of infantile mortality.

According to Mr. Knibbs, Commonwealth Statistician, "the great significance of this decrease is seen in the fact that the general trend of infantile mortality was about 129 in 1880 and only about 72 in 1910 per 1,000 births." In 1917 it fell to 56, was 58 in 1918, but in 1919, the influenza year, it rose to 69 for all Australia.

The record of infantile mortality for the metropolitan area of Sydney shows a progressive decline, having been as high as 119 per 1,000 in 1902, whilst it fell to 71 in 1911, when the infantile death-rate for the whole of New South Wales was 69.5 per 1,000.

In 1917 the rate for the metropolis had fallen to 59 and that for the whole State of New South Wales to 57. In 1919 the figures were 79 and 72, whilst for 1920 they were 74 and 69.

Dr. W. G. Armstrong, Director-General of Public Health and my predecessor as Metropolitan Medical Officer of Health, Sydney, in his Presidential Address to the Section of Public Health at the Australasian Medical Congress, Adelaide, 1905, on "Some Lessons from the Statistics of Infantile Mortality in Sydney," exhibited a table showing that the fall in infantile mortality in the city and suburbs had been continuous and fairly regular since the year 1886, when it stood at 173 per 1,000 births until 1904, when it reached the minimum of 98 per 1,000 births; it has since been reduced to 71 in 1911, to 59 in 1917, but again, unfortunately, rose to 74 per 1,000 in 1920.

The mortality in the first month of infant life in New South Wales has remained constant, aver-

aging 32 per 1,000 during the past twenty years. So far from any reduction in the infantile mortality in the first week of life as far as New South Wales is concerned and the metropolitan area of Sydney in particular the graph shows that we have gone from a stationary bad to a recently worse in so far as that the rate was actually four per 1,000 more than in 1901. Surely this suggests, together with the general increase in 1920 in infant and maternal mortality, that we should consider whether the present somewhat costly scheme of infant welfare is giving results commensurate with the increased expenditure.

When the chief causes of infantile mortality are analysed and a division is made into ante- and post-natal, we find under the former that 38% of infantile deaths are due to prematurity, malformations, icterus, sclerema, congenital debility and other diseases peculiar to infancy, all highest at birth and the first days and weeks following birth.

The significant fact with regard to ante-natal causes is no reduction. With regard to post-natal causes, the chief of which still accounting for 24.2%, is gastro-enteritis. There has been since 1904 until the last two years a progressive decline, certainly as far as the metropolitan area of Sydney is concerned, coincident with the preaching of the crusade for

breast-feeding, initiated and carried out under Dr. W. G. Armstrong.

Dr. Hone, of Adelaide, in his Presidential Address on "Infantile Mortality" to the South Australian Branch of the British Medical Association in 1912, stated:

It is characteristic of all countries that the largest proportion of infantile deaths comes under the head of prematurity, congenital debility and malformation. Up to a few years ago any thought of reducing this proportion was looked upon as outside the range of practical politics.

To-day the elimination of ante-natal causes is part of the programme of the idealistic followers of that new but ever old cult or science, eugenics. Apart from the factor of heredity it is possible to do something by improving the health and environment of the expectant mother. The fact that when a child is born it has been subjected for some three-quarters of a year already to the influences of ma-

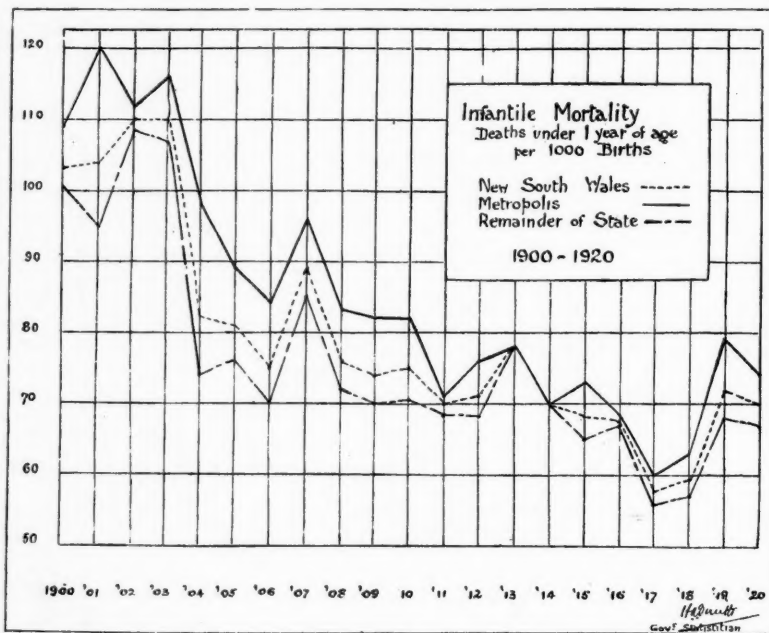


FIGURE III.

ternal environment, has not been lost sight of in the modern crusade to reduce infantile mortality. For instance, in connexion with the St. Pancras School for Mothers, established in 1905 in London, cheap and even free meals were provided for expectant mothers, whilst for suckling mothers it was recognized that it is necessary to feed the mother if the child is to be benefited by being breast-fed. Today the ante-natal clinic is recognized in the scheme of welfare work sanctioned by the new Ministry of Health in England, whilst in Sydney our worthy President, Dr. Fourness Barrington, the Dr. Ballentyne of Australia, has secured at the Royal Hospital for Women, Paddington, the allotment of forty beds for prematernity patients. This pioneer effort in a city with a population rapidly approaching a million is one worthy of encouragement, extension and emulation.

Whatever may be the practical outcome of the fascinating academic discussion of eugenics, there is one field, the successful exploitation of which should yield a harvest in reducing prematurity and congenital debility. This is the movement for the reduction of syphilis and other venereal diseases. Syphilis has been recognized as one of the main causes of prematurity and congenital debility. At the Australasian Medical Congress, Sydney, 1911, Dr. Lambie showed that the rôle of the syphilitic virus was to turn what would otherwise be a slight and recoverable illness into one with a fatal result. Where disease in the first year of life without syphilis means recovery, the same disease plus syphilis means death.

In 1913, at the International Medical Congress in London, resolutions were carried unanimously suggesting the institution of a system of confidential notification of the disease to a sanitary authority wherever such notification did not already obtain and the systematic provision for the diagnosis and treatment of all cases of syphilis.

At the same Congress an interesting discussion took place on the mortality in the first month of life. It was shown that in New York, of all children who died in the first year, 33.2% died in the first month and 4.1% of all children born died in the first

four weeks of life, or about one in every twenty-five. The largest number of deaths occurred in prematurity and congenitally weak infants and accounted for half of the total deaths. It was pointed out that the measures which would go a long way towards the prevention of prematurity, would be those which favoured conserving the strength as well as the health of the mother. If the mother was given rest, good food and quiet surroundings, the child, when born, would benefit thereby. Thus in America there was a movement to give more and more attention to the ante-natal aspect of infant mortality by the establishment of retreats for child-bearing women.

It was held that good food, good surroundings and teaching as to the duties of motherhood to those who were to see their first-born, would do much to reduce the mortality.

#### Illegitimacy.

Of late years a creditable feature in New South

Wales has been the increasing concern shown by the State for the "unwanted" child.

We can congratulate our *confrère*, Sir Charles Mackellar, and Mr. Green, on the success of the hostels and the work in this respect of the State Children's Aid Department.

In 1900, for New South Wales, the illegitimate infantile

mortality of 287 was treble that of the legitimate. In 1920 the rate—137—was only double.

On examining in detail this gratifying reduction in the illegitimate infantile mortality rate, we find an actual increase in the first week, that it is stationary for the first month and then is constant as to a general reduction, month by month. Is it too much to hope for equality in 1940, or even a reduction to a rate only half as large?

With a more rational attitude on the part of women with regard to the so-called "erring sister," too often one who has loved too well, if not too wisely, in putting her trust in a man sometimes polygamous by instinct and to whom love is "a thing apart," the whole existence of a woman who has fulfilled her natural function, even in defiance of convention, may not be damned by her son being designated by that term of endearment beloved of

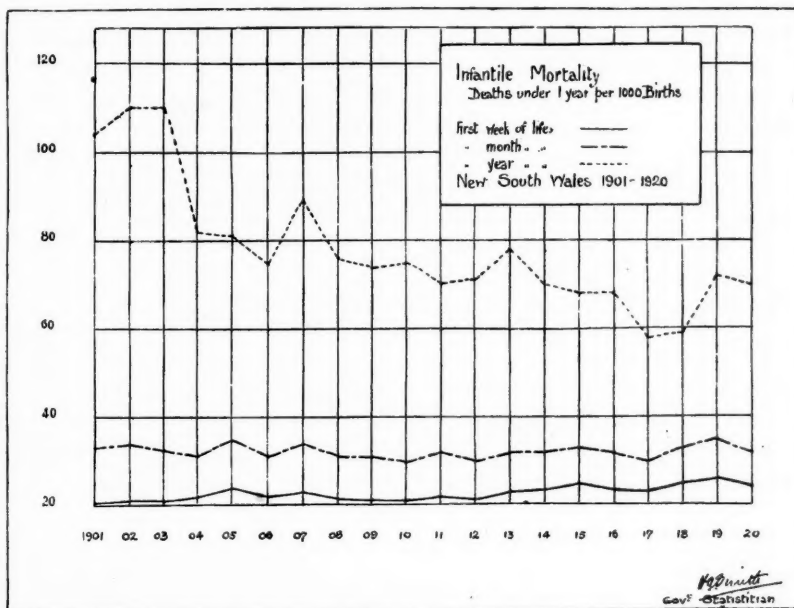


FIGURE IV.

my comrades in the South African war, but less heard in the recent war.

An interesting feature of illegitimacy in New South Wales, which is not high, being only 5% in contrast to 23% in Banfshire, Scotland, is the number of mothers of immature age.

Thus, Mr. Viner, of the Statistician's Department, informs me that over a period of twenty-three years there were 2,823 mothers under nineteen years of age. There was one eleven years old, two twelve years of age; 44 were thirteen, 177 fourteen, 671 fifteen and 1,923 sixteen. This suggests *inter alia* the more general introduction of women police, the segregation of the mentally unfit and the attention of the Church.

An analysis of the deaths among illegitimately born and legitimately born babies elicited the striking fact that during the first week of life illegitimacy does not seem greatly to increase the deaths, but for infants between one and three months it introduces an element of grave danger and a heightened mortality.

With regard to the results from the intensive child welfare campaign in Edinburgh, where special attention has been directed to the work of ante-natal clinics and where the late Dr. Ballantyne's well-known pioneer efforts in that direction focused attention thereon, it is interesting to quote from the report for 1920 of Dr. T. Yule Finlay, Maternity and Child Welfare Officer on the staff of the Medical Officer of Health:

Much more research work along ante-natal lines still requires to be done before we can hope to deal effectively with deaths from congenital disease and, while not neglecting to carry on the crusade against post-natal diseases, the time appears to have been reached when intensive work along ante-natal lines should be encouraged in order further to reduce the wastage of infant lives.

*The British Medical Journal* (August 13, 1921) commenting on the above states:

This is a true saying and also a correct diagnosis of the present state of child welfare work.

The congenital causes of infantile death, such as prematurity of birth (and especially the conditions leading thereto), malformations, atrophy, atelectasis, injury at birth and congenital syphilis, produce their dire effects chiefly in the first weeks of

life. Consequently the neo-natal death-rate ought at once to show if mother welfare work, as represented by ante-natal clinics and the like, is beginning to save infantile lives. Scanning and comparing the neo-natal death causes in Edinburgh in 1919, there were 243 deaths in the first four weeks of life out of 5,612 live births, giving a neo-natal death-rate of 43.3; in 1920 there were 294 neo-natal deaths out of 7,774 live births, producing a neo-natal death-rate of 37.8. In the former year the congenital conditions leading to death numbered 205 out of 243, whilst in the latter year there were 217 out of a total of 294. If the same proportion had been maintained, the deaths due to congenital conditions ought to have been more nearly 249 than 217.

#### Registrations of Births, Still-Births and Deaths.

This looks as if the work of the ante-natal clinics

was beginning to have an effect and the scrutiny of the individual causes would seem to point to a reduction in the fatality of premature birth as the means leading to this effect.

The importance is suggested in the review of giving a still-birth rate in future, for it is in this direction that ante-natal care ought soon to show whether or not it is achieving one of its main purposes. In this regard attention might here be directed to

the Report from the Select Committee of the Legislative Council of New South Wales on Registration of Births, Deaths and Marriages, ordered to be printed on October 21, 1886, since which date, according to the Royal Commission on the "Decline of the Birth Rate" and on the "Mortality of Infants" in New South Wales in 1906 and a terrible indictment against apathy equally true to-day, no material alteration has been made in the law or its administration.

Under the *Registration Act, 1899*, it was shown with regard to births that:

(1) The Act does not insure the registration of all births.

(2) It does not provide for the registration of still-births.

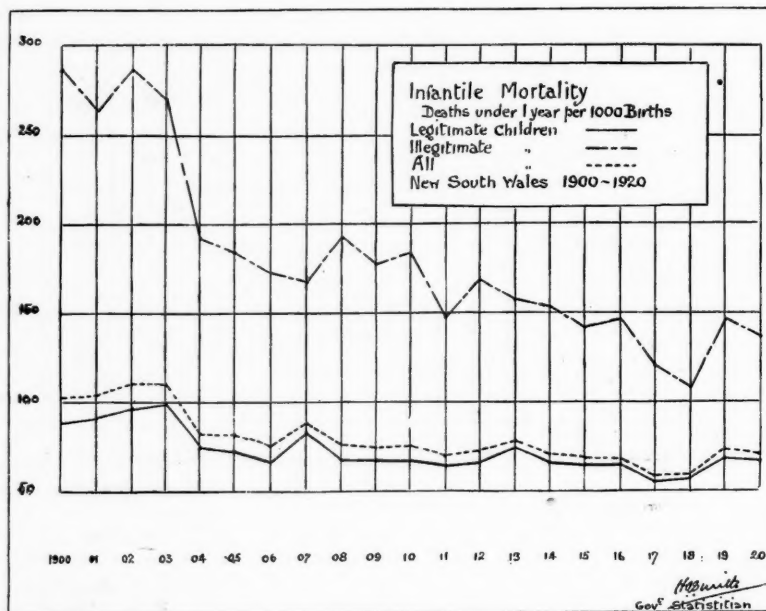


FIGURE V..

Hoggins  
Gov. Statistician



(3) It does not provide for the registration of birth prior to burial of a deceased infant.

(4) It does not afford protection against the registration of fictitious births.

(5) It allows a period of sixty days for the registration of a birth, which is unnecessarily long and causes a leakage in registration.

(6) It prohibits the registration of birth after six months from the date of such a birth.

(7) The parent is the only person it requires to give information for the registration of a birth and there is no effective check on the truth of the information supplied.

In respect to deaths it was shown that:

(8) The Act does not insure the registration of deaths.

(9) It does not provide for medical certification of the causes of death.

(10) It does not provide for the registration of deaths before interment.

(11) It does not provide for the registration of interments.

(12) It does not provide for the effective control of undertakers.

(13) It does not prohibit interments elsewhere than in cemeteries or other authorized burial places.

(14) It does not provide for the identification of deceased persons.

(15) It allows a period of thirty days for the registration of a death, which is unnecessarily long.

(16) It does not afford protection against the registration of fictitious deaths.

(17) The "tenant of the house or place" is the only person required to give information of a death and no effective check on the truth of information supplied relative to a death is provided.

It was further set out:

We are of opinion that, with a view of securing a more satisfactory registration of births and deaths and a system

of registration which will more completely and readily supply the data required for the compilation of vital statistics, the existing system of registration needs considerable amendment."

It might be added: "And so say all of us."

Further, in view of the birth of the Commonwealth since that date and the consummation shortly of its majority, in the interest of uniformity the prevention of duplication, with consequent contradiction and the absurdity of supplying

two sets of vital statistics for one country and people, the subject is worthy of discussion at the proposed Federal Constitution Conference, whether or not it is expedient, economical and making for efficiency to have one collection and collation of vital statistics throughout the whole Commonwealth and States, if the latter continue as at present.

The districts for which statistics are compiled for the State of New South Wales follow the grouping as to municipalities, but not so in the case of the Commonwealth. The registrar's district, the police districts, the sanitary combined districts, the electoral and other districts do not coincide.

After the Registrar collects his data, the Government Statistician has to compile fresh cards. The Commonwealth Statistician compiles a different classification; then the Department of Public Health ultimately

has to juggle with the figures to get them to fit into the sanitary districts.

This lack of uniformity makes for confusion and the rates published by the Government Statistician, the Commonwealth Statistician and the Health Department seldom are the same, either as to figures, classification or sometimes even the deductions drawn therefrom.

After repeatedly advocating, both before and

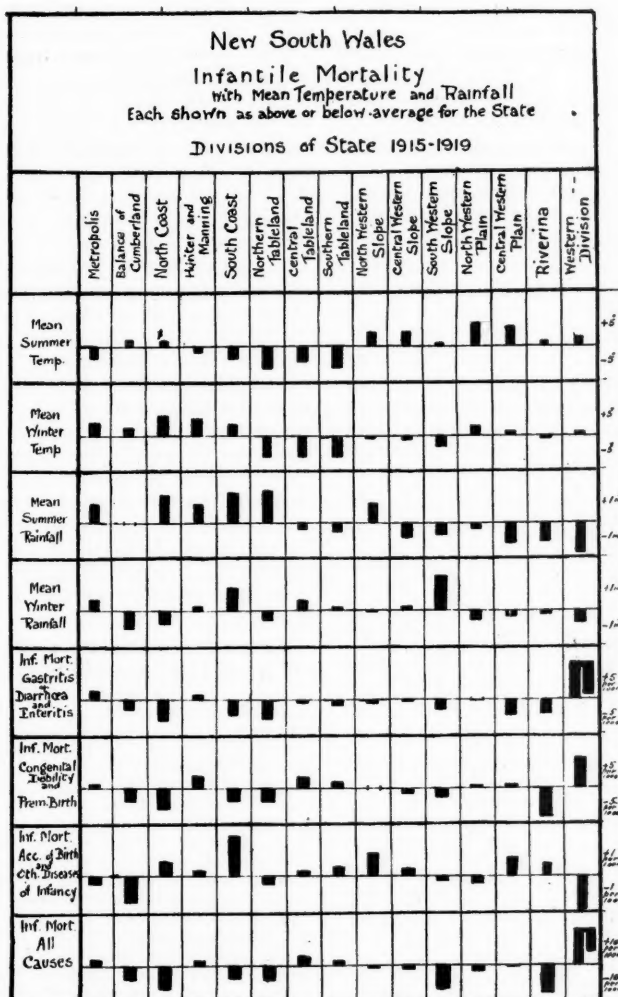


FIGURE VI.

since the war, an "Early Notification of Births Act," I learned last year that such an act actually became law in 1915. As the administration of the Act, as well as the supervision of the welfare of mothers and infants, is not now a function of the Health Department, as is a *sine qua non* in other countries, it is pardonable on the part of my associates not even to have been aware of or to have forgotten its existence. *Mais, revenons à nos moutons!*

#### Causes of Death of Infants.

Of post-natal causes of death among infants, both in Australia and other countries, the most frequent is summer diarrhoea or enteritis, now generally known as gastro-enteritis. The average infant death-rate from gastro-enteritis for the whole State of New South Wales for the five years—1915-1919—was 14.15. The south-western slope, the north coast and the northern tableland were the best, with records of 8.3 and 8.5 and 8.9, whilst that of the western division was as high at 33.6. The metropolis figure was 17. There is some relationship between the rainfall and the infantile mortality, more especially as regards that from gastro-enteritis. Thus, the mean rainfall in the summer (the months in which the incidence is highest) was only 1.7 centimetres (0.68 inch) for the western division, in contrast to 9.9 centimetres (3.93 inches) on the north coast and 8.4 centimetres (3.32 inches) on the northern tableland. In the Riverina, with the lowest infantile mortality of 49.9 and a gastro-enteritis rate of 10.2, the mean summer temperature was 25.8° C. (74.8° F.) and the rainfall 3.6 centimetres (1.41 inches). The metropolis, with a mean summer temperature of 21.8° C. (71° F.) and a rainfall of 8.7 centimetres (3.45 inches) had a gastro-enteritis rate of 17.

Taking a seven years' period—1913-1919—the north coast, with an infant mortality rate of 51.08, was better than the Riverina, with 57.45. The south-western slope, with 54.22, was only second in Australia to Gippsland, with 50.83, with, of course, the exceptional low rate of 31.25 in Canberra (where, however, the total births for the period of seven years were only 329 with ten deaths under one year, consequently not of much value statistically).

In 1919 in each State the rates of mortality were higher in the metropolitan than in other districts.

Diarrhoea and enteritis are more fatal from the third to the fifth month, the numbers thereafter gradually decreasing towards the end of the first year.

With regard to the higher rate in the metropolis during the period under review, I can only suggest that there was less proportionate breast-feeding, that the illegitimacy factor was higher, that flies and dust were more prevalent or that the milk, both of the mothers and the cows in the Riverina and the north coast, was possessed of more vitamin content and less dirt.

Reviewing the many reports of health officers on the subject, I find the main means of encouraging a low infant mortality, given a healthy stock and a decent standard of living, are breast-feeding, with intelligent and pains-taking mothering, good housing, strict supervision over the milk supply, with

substitution in the summer months of dried milk, improved municipal sanitation, especially with regard to mitigation of the fly pest by attention to stables, removal and incineration of garbage, together with teaching of hygiene and the nurture of children to the senior girls in all schools and generally inculcating knowledge and habits with regard to personal and home hygiene by lessons, cinemas, press article and a health and baby week.

#### Infant Welfare Campaign in Sydney.

The Government Statistician in his Official Year Book of 1920 partly ascribes the improvement in the infant mortality rate to the efforts of the trained women inspectors appointed in connexion with the scheme formulated by the Sydney Municipal Council in 1903 for the preservation of infant health. The use of the adverb "partly" does not, in my opinion, give sufficient credit to the remarkable reduction which followed the inauguration of the scheme, which began with the appointment of the first lady sanitary inspector, Miss Ferguson (now Mrs. Bros) in 1903 by the City Council. Miss Ferguson drew attention to the need for some system of supervision over mothers and infants. In 1904 the City Council, on the advice of Dr. Armstrong, City Health Officer, formulated a scheme for the home visiting of mothers and issued a pamphlet on the care and feeding of infants. The result was so successful that ultimately the work was extended to the suburbs under the charge of Mrs. Cooper Day, later assisted by Miss Burne, the work being further extended to the Newcastle district. By the end of 1914 there were nineteen nurses employed by the Department of Public Health, in addition to Miss Blomfield, a certified midwife and nurse-inspector, who took over the duties of Inspector for the City in 1912.

To quote the report of the Metropolitan Medical Officer of Health in 1914:

The visiting of infants in the city of Sydney is carried out by Miss Blomfield, the Nurse Inspector of the Health and Sanitary Department of the City Council. In the more centrally situated and populous suburbs of Redfern, Darlingtown, Newtown, Glebe, Alexandria, Waterloo, Mascot and Botany, the work is performed by Mrs. Day and Miss Burne, the Nurse Inspectors, under the personal supervision of Dr. Armstrong.

The year 1914 was the eleventh in which this work has been carried on within the city of Sydney. An important feature since the introduction of the Commonwealth maternity bonus is that the average age of children when first visited has fallen from 5.2 to 2.3 weeks, due to the earlier notification of births.

The most gratifying result brought about by the visitation of newly-born infants has been an increase in the proportion of breast-fed children in the city.

Dr. Armstrong records that, when the work of home visiting by trained women inspectors was undertaken in the year 1904, the proportion of entirely breast-fed children found on the first visits was 72.2% of all those visited. In 1911 the proportion of entirely breast-fed children was 82.5%, in 1912 it was 84.4%, whilst it was as high as 93.2% in 1914, the last year the work was carried out by the Health Department. These figures alone are convincing evidence of the benefits accruing from the teaching campaign inaugurated ten years ago. The increased percentage of 90.4 children being entirely breast-fed in 1913 and 93.2 in 1914 is accounted for by the fact that the children were seen on an average at an age a fortnight younger than in previous years, resort to artificial feeding increasing in proportion to the age of the child.

Whilst the unfortunate increase in infantile mortality during the last three years was, as far as 1919 is concerned no doubt due to the influenza pandemic, it is certainly disappointing in view of the great extension of infant welfare work through the baby clinics that the rate for 1920 was nearly 12% more than that of 1918. More epidemic incidence of measles and whooping cough accounts in some measure for this.

I have urged in season and out of season since resuming duty after the war that the whole campaign for the reduction of infant mortality should be coordinated under the Director-General of Public Health or directly under his control, both as far as the professional and voluntary effort is concerned.

May be the introduction of registration and supervision of midwives, suggesting the appointment of a registered medical woman with a diploma of public health to work on similar lines to those employed by the Ministry of Health, England, and the London County Council, will direct attention to the fact that the most important function of a health department, namely, the reduction of infant mortality and the welfare of mothers and infants, is not under the Director-General of Public Health, the permanent head of the department.

The fact that the present Director-General of Public Health, when Metropolitan Medical Officer of Health, Sydney, inaugurated in Australia a system of home visitation by trained nurse-inspectors in 1904, actually some years before the system became general in other countries, and therewith concentrated the main efforts of the nurses to advocate breast-feeding and that this pioneer effort to tackle the problem proved as to results successful, has to its credit the universal recognition that the pivotal centre should be the medical officer of health.

The subject of infantile mortality is affected by every phase of sanitation, embracing housing, scavenging, milk supply, prevention of the spread of infectious disease, disinfection and, in fact, almost every branch of preventive medicine and it appears to me that the general organization of coping therewith should not, as at present, be practically divorced from the immediate supervision of the Health Department.

When attention is directed to New Zealand, with its excellent record with regard to infant mortality, one recognizes at once the work of Dr. Truby King. I pointed out recently that the one defect in the New Zealand organization, at its inception and for the first few years (an opinion that Dr. Truby King, with whom I had the honour to be associated, shared with me) was that the work of the society concerned was not coordinated with that of the Health Department. At first the relations between the Department of Public Health, except as far as Auckland and Dunedin centres were concerned, were not conducive to coordination of effort in tackling the problem. As a matter of fact, shortly after Dr. Truby King inaugurated his campaign, Dr. Agnes Bennett, of Wellington, was sent to Sydney by the Health Department to investigate Dr. Armstrong's campaign and on her return a separate pamphlet was issued.

The New Zealand method is now, as far as one

can judge, at a distance of 1,200 miles, an ideal one. The enthusiastic expert who initiated the scheme and who is by common universal consent one of our greatest authorities and the most successful exponent of infant welfare work, is the Director of Maternal and Infant Welfare directly responsible to Dr. Valentine, the Director-General of Public Health, under the Honourable A. J. Parr, the Minister of Health. In New South Wales opportunity is being lost in not resuscitating or giving some "pep" to the movement at the point where New Zealand has recognized the need for unity of command in her crusade for the still further reduction of infant mortality, with which is so intimately associated that of maternal mortality.

It appears to me that the time is opportune for the profession to urge recognition of what is a *sine qua non* in Great Britain, that all infant welfare work should be coordinated and directly under the control of the executive officer, the success of whose work is or should be measured to some extent by the reduction of infant mortality.

There is and always will be abundance of scope for the cooperation of laymen and voluntary societies and workers, including the Royal Society for the Welfare of Mothers and Babies and the great Red Cross organization. The problem is, however, first and foremost one of preventive medicine. Once it is again recognized that the job is one for a trained medical expert and the special function of the Department of Public Health, we may see as the result of a united combined advance based on organized knowledge with the arousing of new interest in the movement, a return to the down grade in our infant mortality record.

My contention is that we should recognize that in Sydney we actually had a system which only required expansion to be on the same lines as the present New Zealand system. That is to say, whilst New Zealand, as to its organization in fundamental principles, such as coordination under one department, has now adopted the original system introduced here, we have reverted to the system originally started in New Zealand, except that in the case of the latter, the whole organization was under a medical man, who not only thoroughly knew from a professional standpoint the subject he was handling, but who was exceptionally endowed with a capacity to enthuse others with his own spirit of enthusiasm for the work.

Even with regard to the training centres, I advocate that we should go further than New Zealand has hitherto attempted and that is to insure that every trained nurse in the course of her training requires some theoretical and practical knowledge in the feeding and nurture of infants. With the State registration of nurses and registration of midwives, with the alteration of the syllabus required to be studied by candidates for examination, it would be a small matter to include this subject in the examination. Until this is achieved, possibly representations to the Australasian Trained Nurses' Association may have the desired effect. It is reasonable to consider whether a mistake was not made in transferring the supervision of the machinery for



the reduction of infantile mortality from the Department of Public Health. To me it is a matter of plain common sense that the Department of Public Health is the one and only department whose special function it should be to coordinate and administer the whole of the work connected with this important subject. With regard to the Royal Society for the Welfare of Mothers and Babies, that can, of course, do excellent work by acting as a *vis a tergo* to the Department and by keeping in touch with public interest in the movement.

Whilst it is generally admitted that wide-spread ignorance with regard to the feeding and care of infants has been a factor in keeping up the infant mortality rate, one must concede that lack of knowledge has not been entirely confined to the mother. It is only in recent years that medical schools have included instruction in diseases of children in the medical curriculum. In my time as a medical student in the 'nineties at Aberdeen University, there was no special course in this fundamentally important special branch of medicine. Attendance in the wards of a sick children's hospital was not compulsory. After qualification one had to pick up information as one went along in practice. Even today I understand that no special teaching in this subject is given at some medical schools to all students. So greatly appreciated was the short course of lectures in this subject instituted at Melbourne, that the senior students petitioned the Medical Council for its extension, recognizing that after qualification the larger portion of general medical practice is among women and children.

Even more extraordinary is the fact that the care and feeding of infants is not a routine subject in the curriculum for nurses. As Dr. G. Bruton Sweet says in his book, "Infant Mortality":

It is the experience of most medical men in Australia that the training of nurses as regards infant management is far from satisfactory.

Even nurses trained in children's hospitals, although better equipped in knowledge of this subject than those trained in the general hospitals, lack special knowledge in the care and feeding of children. They have been used entirely to nursing sick children and consequently are not entirely familiar with the principles of feeding normal children.

It is poor service to a State to cater only for the needs of a portion of its infant population, as is being done in New Zealand at the present time. The elaborate methods necessary for the preparation of humanized milk and the cost of its production prohibit its use by the poor and it is the infants of this class of the community before all others that we should try to save. Children of the well-to-do always have a chance of surviving, owing to their better conditions of hygiene and environment. If we are to reduce infant mortality and thus assist in increasing the fighting population of the British Empire, we must devote our attention to saving the babies of the poor and thriftless, as well as the more favoured classes of the community.

The educational campaign must, however, be general and not limited to special classes of the community. In this regard, whilst in New Zealand I advocated compulsory service for girls as a complement to that for boys and advocated the teaching of all girls from fourteen to sixteen in special subjects, such as hygiene, home nursing, the care and nurture of infants.

In the Tasmanian *Public Health Amendment Act*,

1911, the Governor may from time to time make regulations:

(1) Providing for, prescribing and regulating courses of instructions for females—

(a) In hygiene generally;

(b) In subjects concerning the health and welfare of women and children and in particular the nurture and feeding of infants; and for examinations to be held and for the granting and issuing of certificates of knowledge or merit and of medals to candidates passing such examinations.

(2) Prescribing and regulating the method of conduct of examination and the remuneration (if any) payable to instructors, lecturers and examiners.

(3) Prescribing the fees payable and the forms required under or for the purposes of this section.

(4) Generally providing for anything which the Governor considers necessary, in order to give full effect to or carry out the purposes of this section.

The rearing of a healthy race is not a simple matter, but still it can be forwarded if only knowledge at present in the possession of a few can be extended to the many.

The promulgation of propaganda is now recognized as a function of the Health Department. The ideal is to make everyone conscious of his responsibility, individual, family and national, in acquiring this knowledge and passing it on. The initial duty is one of enlightenment.

#### Conclusions.

1. The saving of child life and the rearing of healthier children in better homes and better surroundings is the corner stone of our future national prosperity and indeed of the continued existence of our Empire.

2. In protecting motherhood we insure to those who come after us, the full heritage of this generation.

During the last twenty years the problem has engaged the attention of public health authorities and their officers, with the invaluable assistance in recent years of voluntary agencies. The reduction by two-thirds of the loss of life among children under one year is some measure of the success of their efforts.

A vast amount of work remains to be done before any mother and child can be regarded as having a reasonable prospect of freedom from risk to health and life at the most vital period of life.

The lack of good home conditions and of skilled domestic assistance in times of emergency constitutes one of the chief reasons for the excessive risks to life and health in the wage-earning classes.

3. It will have availed us little to have won this world war in the fighting line in the second decade of the twentieth century if, long before that century closes, we have not consolidated our victory and our world position by a plan of social campaign and a peace programme of which one of the main features must be the rearing of a virile race, embodying the mental, moral and physical qualities which, under God's blessing, have enabled one nation thus far to sow far and wide the seeds of a higher civilization.



## AORTIC REGURGITATION: ITS PROGNOSIS AND TREATMENT.

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AORTIC incompetence and mitral stenosis constitute the two forms of cardiac valvular disease which *per se* have a serious prognostic significance. In the present article an attempt is made to summarize some of the facts in regard to aortic insufficiency which modern cardiac research has elucidated, and also to furnish specific guidance in regard to prognosis and treatment which may be of definite practical value in the management of these most important cases.

*Ætiology of Aortic Valve Lesions.*

Lesions of the aortic valve are either primary or secondary in origin. Primary lesions occurring in early life, which are not infrequently associated with a lesion of the mitral valve also, are usually due to a rheumatic or some other infective process. Primary lesions appearing towards middle life and especially that dangerous form of aortic insufficiency resulting from a sub-acute aortitis, are nearly all syphilitic in origin. Finally, primary lesions appearing in late middle life or old age are mainly due to atheroma. These cases are, generally speaking, the least serious of all forms of aortic insufficiency and are frequently associated with a varying degree of aortic stenosis.

Secondary lesions of the aortic valve, on the other hand, have a very different ætiology. They are as important as they are often difficult of diagnosis. Presenting certain peculiarities which mark them off from the more typical forms of aortic disease with which all are familiar, they frequently pass undetected unless watched for with special care, whilst their prognostic significance is more grave than that of any other form of aortic lesion, not excepting that which occurs in connexion with an acute or sub-acute aortitis. These secondary lesions arise in connexion with mitral stenosis. They occur when an old mitral lesion has become the seat of a secondary bacterial infection and their significance is that infection has spread to the aortic valve and that one is dealing primarily with a case not of valvular disease of the heart, but of infective endocarditis. The prognosis in these cases is of course bad. The patients not infrequently show extraordinarily few serious symptoms beyond a more or less marked secondary anæmia and an evening rise of temperature, which in many cases is not at all marked, until within quite a short time of death. Other patients, again, show much more marked and obvious signs of their condition, though it is not these latter which necessarily progress to a most rapidly fatal issue. Prognosis practically resolves itself into a question of duration, but since there may be periods of remission and apparent improvement, it is inadvisable to be otherwise than indefinite in attempting its answer. Finally, before leaving these secondary affections of the aortic valve, it will be well to indicate their more important clinical features, as they

differ in some respects from those found in the more common types of aortic incompetence.

In the earlier stages and in practically every case the infection mainly involves the posterior cusp of the aortic valve. It gives rise only to a soft, blowing and distant diastolic murmur, often inaudible over the aortic valve area and best heard along the left border of the sternum around the third and fourth interspaces. In some cases it is best heard at the apex; in others over the xiphoid cartilage; it will be readily understood how easily this condition may be missed unless carefully watched for in all cases of mitral stenosis, together with the generally associated signs of a progressive anæmia and an evening rise in temperature. A further feature of these cases is the often markedly collapsing character of the pulse, even when the posterior aortic cusp is alone affected. This sign, if it develops more or less suddenly in a case of mitral stenosis in which hitherto the aortic valve is known not to have been affected, should at once reveal what has occurred.

*Prognosis in Aortic Insufficiency.*

These secondary infections of the aortic valve, which stand in a class by themselves, need not be further considered here. In regard to the prognosis and treatment of those cases, primary in origin, which constitute the familiar type of aortic insufficiency so frequently met with in daily practice, five main factors have to be taken into account. These will be examined in the following order: (1) The pulse, (2) the blood pressure, (3) the condition of the vaso-motor system, (4) the subjective symptoms of the patient, (5) the state of the myocardium. Consideration of the state of the myocardium is intentionally reserved until last and is only included for the sake of completeness, because not only is this the final determining factor in every form of cardiac lesion, but in all that follows it is assumed that we are dealing only with cases of aortic insufficiency in which the heart develops or is capable of developing a reasonable degree of working efficiently. If this be not the case, it is obvious that the question of prognosis can be dismissed in a single word—bad.

*The Pulse.*

The two most important prognostic factors in regard to the pulse are its rate and its rhythm. A persistent pulse-rate of about ninety is always to be looked upon as a serious danger signal. In this connexion, however, it is imperative to bear in mind the special susceptibility of these patients to tachycardia of purely nervous origin. No trouble is too great in order to reach a final opinion as to whether an increased pulse-rate is due to myocardial changes and threatened cardiac failure or to temporary nervous and emotional causes. To this end it may even be necessary to arrange for frequent pulse counts during a short rest in bed or during sleep. In regard to the rhythm, four irregularities have to be considered in connexion with prognosis: (a) extra systoles, (b) heart block, (c) *pulsus alternans*, (d) irregularity due to auricular fibrillation.

The exact prognostic significance of extra systoles is not quite clear. When they are infrequent in

number and not persistently present they may be disregarded. But if they are frequent and persistent they are best looked upon in the same light as the increased knee jerk sometimes found in early cases of *tubes dorsalis*, i.e., as due to that irritation which so often precedes degeneration of the central nervous system in the one case and of the myocardium in the other. Heart block is to be looked upon as a complicating condition, signifying a degenerative process involving the auriculo-ventricular bundle. Its further prognostic significance has to be considered in conjunction with the degree of block present and the general condition of the myocardium. The *pulsus alternans* implies, of course, a failing power of contractility on the part of the heart muscle and, even under otherwise favourable conditions, points to a fatal termination within a maximum limit of two years. Auricular fibrillation only occurs in quite a small proportion of cases of aortic insufficiency; its prognostic import is far graver, generally speaking, than when it occurs in cases of mitral stenosis. It is almost always very intractable to treatment and is to be regarded as an unfavourable prognostic point.

#### *The Blood Pressure.*

The blood pressure in aortic regurgitation furnishes us with one of the most valuable of all prognostic data in this condition. A systolic pressure, well maintained of about 180 millimetres of mercury, is a most favourable sign. Especially is this the case when its relation to the diastolic pressure does not show a great departure from the normal ratio. In the absence of a sphygmomanometer, a rough working indication of this ratio may be deduced from the degree to which the pulse displays the characteristics of collapse. Conversely, a low or a falling systolic blood pressure has a reverse significance, as the following reflection will show. Aortic insufficiency is invariably associated with dilation of the smaller arteries. This factor, occurring in combination with the regurgitation, results in a low diastolic pressure. In order to compensate for this and to maintain a mean blood pressure throughout the vascular system, increased effort on the part of the myocardium is essential. This produces a high systolic in conjunction with a low diastolic blood pressure or, in other words, the Corrigan pulse. A high systolic pressure, therefore, means an efficient and strongly-acting myocardium, whilst a low one signifies the reverse. A patient with aortic incompetence and a low or persistently falling systolic pressure is in danger of myocardial failure.

#### *The Condition of the Vaso-Motor System.*

Given a moderately efficient myocardium, there is no more important factor from the standpoints of both prognosis and treatment than the state of the vaso-motor system. As is well known, aortic insufficiency is almost invariably associated with great sensitiveness and instability of the vaso-motor mechanism, whilst the maintenance of an efficient vaso-motor tone and of the prevention of vaso-motor fatigue is a paramount factor in the prognosis and management of these cases. The persistent dilatation of the smaller arterial vessels present in this

condition of necessity places the whole vaso-motor mechanism at a great disadvantage. The recognition of the high importance of vaso-motor tonus in all cases of aortic incompetence has satisfactorily cleared up several mysteries hitherto associated with this cardiac lesion. The fact that many individuals who are the subjects of this malady, can do a hard day's manual labour without any inconvenience or distress, but promptly have an attack of syncope on standing, for example, in a theatre queue for any length of time or, again, the early death which so often supervenes shortly after these patients cease to follow some active occupation for other than cardiac reasons, seems at first sight inexplicable. When, however, it is realized that with an efficiently acting myocardium the one thing that will aid it to maintain the blood pressure is muscular exertion, by insuring the return to the heart of an adequate supply of blood during each period of diastole, it is easy to understand why the absence of such exertion or, worst of all, the placing without muscular exertion of the greatest strain possible upon an already unstable vaso-motor mechanism by prolonged standing in the upright position, leads to a rapid fall in blood pressure, a sudden greatly increased demand upon the heart muscle which it is unable to meet, with the result that a syncopal attack occurs. Further, this factor explains why fainting attacks in cases of aortic incompetence are so frequent and yet so rarely serious, for they are usually due, not to myocardial exhaustion, but to vaso-motor fatigue. At the same time it is well to bear in mind that extreme vaso-motor fatigue is one predisposing cause of sudden death in these cases.

#### *Subjective Symptoms.*

Apart from symptoms directly due to a serious and persistent degree of cardiac failure, there are two subjective symptoms which more especially give cause for anxiety in regard to prognosis. The one is pain, the other is sleeplessness. Apart from the severe sub-sternal pain, which constitutes a feature of an acute or sub-acute aortitis, both have the same significance, viz., that myocardial trouble is present or threatening. Pain, if at all constant and persistent on exertion, is to be primarily regarded as indicative of cardio-vascular degeneration, though it is far from invariably present in this condition, whilst it may in some cases be due to a sudden rise in blood pressure consequent upon vaso-motor instability. Sleeplessness, on the other hand, is an indication more particularly of a feebly contracting myocardium and, generally speaking, is the more serious symptom of the two. So far as prognosis is concerned, the significance of both pain and sleeplessness must largely be judged by their response or otherwise to proper treatment, in which connexion they will be further considered.

#### *The Condition of the Myocardium.*

For the reasons already stated, this factor will not be discussed at any length. Patients with aortic insufficiency who display definite signs of cardiac failure, require the treatment appropriate to that condition. A few points, however, in regard to the myocardium in this particular valvular lesion may

be noted in passing. First and most important is the maintenance of the myocardial tonus, because, once this fails, it is a more serious and difficult condition to combat in aortic regurgitation than in any other valvular lesion *per se*. Secondly, too much weight should not be attached from a prognostic point of view to the degree of myocardial hypertrophy which may be present. It is probable, though not yet proven, that the enormous size of the heart so often found in these cases is due to causes other than the mechanical one consequent upon the regurgitation. Certainly the degree of hypertrophy is no accurate guide to the degree of regurgitation and the latter again, even if a fair estimate of it can be made, is of very doubtful prognostic value. Thirdly, myocardial failure occurring in aortic insufficiency is but rarely associated with œdema and dropsy. If this be present, some other cardiac or extra-cardiac cause, such as nephritis, should be sought. Finally, aortic insufficiency, atheromatous in origin, occurring in late middle life or in the elderly, rarely of itself leads to myocardial failure; it is rather to be looked upon as one of the signs of a general cardiovascular degeneration.

#### Treatment.

As in every other form of cardiac disease, the aim of all treatment is the prevention of cardiac failure. It has already been pointed out why this is of special importance in cases of aortic incompetence. To this end the first and most important means is an incessant watchfulness of each case, for, should the patient pass the boundary line between a threatened and an actual impairment of myocardial efficiency, our care and attention is no longer directed to maintaining the patient in good condition and enabling him to lead a useful life, but to prevent him as far as may be possible from dying—two very different clinical objectives. Given patients with this lesion and a strongly acting heart muscle, the first point in treatment is "to keep them on the move" within a comfortable margin of their limit of cardiac response. At the same time, every patient should be strictly warned against anything in the nature of "standing and pottering about," a sure means of rapidly inducing vaso-motor fatigue. In other words, when they are engaged in muscular effort, that effort should be purposive and definitely active in character, so long as no symptoms of cardiac distress are evoked. On the other hand, when not so engaged, the more absolute the rest the better. Long nights in bed are much to be desired and the avoidance of sudden and excessive demands upon the cardiac muscle. What is just as, if not even more, essential of nervous and emotional shocks of every kind, are points which are of the first importance in the care and management of these cases. Other general points in connexion with the regulation of the daily life, habits and functions of the patient must be suited to each individual case and need not be detailed here, since they apply to every chronic cardiac malady, with such modifications as any particular case in question may require.

I have next to consider in what that incessant watchfulness, of which the extreme importance has just been mentioned, consists and how it is to be

directed towards the early recognition of the danger signs which are first likely to appear in a previously well compensated case of aortic insufficiency without signs or symptoms of cardiac failure. One of the most eminent living cardiologists, who has an enormous number of these patients continuously under his care, has recently given three reasons why practically none of his patients suffering from aortic regurgitation ever drop down dead. These reasons are as follows: (1) Every patient is seen once a week. (2) At each interview the pulse-rate is carefully taken. (3) The patient is always asked: "Are you sleeping properly?" In other words, the two most common early signs that a person with aortic regurgitation is beginning to go down hill are an increasing pulse-rate and insomnia; both demand prompt and efficient treatment. An increasing pulse-rate requires rest and nothing short of absolute rest in bed until the rate comes down is of the slightest use. For whilst partial rest and limitation of effort may suffice to relieve moderate degrees of præcordial pain and distress, so frequently met with in these cases, it is useless in the presence of a persistently increased pulse-rate due to that increased myocardial irritability which is the forerunner of myocardial exhaustion. Under these circumstances digitalis may be given in all cases. For the first few days 0.6 mil thrice daily may be prescribed with the usual precautions and its effect upon the pulse-rate carefully watched. Should a fall occur, the quantity ought to be reduced somewhat to, say, 0.6 mil twice a day; similarly, if after a week or ten days it is evident that the digitalis is having little or no effect upon the pulse-rate, it should be reduced to 0.3 to 0.35 mil three times a day and given only for its general tonic effect upon the cardiac muscle. The dramatic results from large doses, so often seen in cases of mitral stenosis with auricular fibrillation, are of course not to be anticipated in threatened cardiac failure associated with aortic regurgitation.

In regard to the insomnia, a patient with aortic regurgitation who is sleeping badly, is doing badly and if physical rest is the first essential where the myocardial efficiency is threatened, sleep is the second. A word of warning, however, is necessary as to the use of morphine, especially when administered hypodermically, because, for some obscure reason, there is a peculiar liability in these patients to sudden death if the slightest effort is made, such as sitting up in bed, during the stage when the effects of the drug are passing off. A safer means of securing sleep is to administer at bed-time for a few nights a mixture containing 0.6 or 0.9 gramme each of potassium bromide and chloralamide.

Two final points in regard to treatment require notice. The examination of a patient with aortic incompetence of doubtful aetiology is never complete unless a Wassermann test has been done; this applies to every case developing towards early middle life in the absence of some other obvious causal factor. As to in what, if indicated, the course of anti-specific treatment should consist is largely a matter of opinion. Perhaps the majority are best suited by iodides and mercury—the latter to be administered either by intra-muscular injections of mercurial



cream or by innunction. Certainly, if utilized at all, treatment should never be confined to arsenical preparations only. Lastly, a word of caution is justified in regard to treatment based upon conclusions drawn exclusively from the use of that somewhat dangerous instrument, the sphygmomanometer. It has its undoubted uses, though they are distinctly limited in dealing with cardio-vascular disease; but when, for example, its reading is used to adopt a course of treatment designed to reduce the blood pressure in cases of aortic insufficiency, without careful regard to the many other factors involved, it becomes, for reasons which have already been made clear, an exceedingly dangerous colleague. Happily for these patients, however, no treatment of this kind is at all likely to have any permanent result, but considerable temporary danger may arise from even a transient considerable lowering of the blood pressure in some cases by the production of any extensive degree of general vaso-dilatation.

Lack of space precludes any further discussion of the many remaining points of interest in connexion with perhaps the most serious of all valvular lesions of the heart. In conclusion, it only remains for me to express my deep indebtedness to Dr. J. Stickland-Goodall, whose cardiological clinics are one of the outstanding features of advanced teaching in clinical medicine in London at the present time and to whom I owe so much of the material incorporated in this article.

## Reports of Cases.

### THE INHALATION OF PETROL.

By A. W. ST. LEDGER, M.B., B.S. (MELB.),  
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G.H.B., a healthy station owner, aged 34 years, was admitted to hospital on December 19, 1921, at 4 p.m.. He stated that about thirty-six hours earlier, whilst attempting to clear the petrol pipe of his car, he had sucked a considerable amount of the spirit into his mouth. As this happened "he caught his breath" and he was quite clear that some of it "went down the wrong way."

On admission he complained of acute pain in the right hypochondrium and stated that the pain started immediately after aspirating the petrol. The pain was stabbing and colicky in character and much increased by respiration. His temperature was 39.6° C., his pulse-rate 115 and his respirations 35 to the minute. He was very distressed and was obviously in acute pain. He adopted a position sitting up, stooping and leaning towards the right side.

The respiration was short and jerky and his breath smelt distinctly of petrol. There was no cyanosis nor coughing. The respiratory movement seemed inhibited on the right side and the abdomen was immobile.

There was slight dulness to percussion over the inferior axillary region, with a corresponding diminished vesicular murmur. Elsewhere the chest seemed normal and no adventitious sounds could be detected.

The epigastrium was rigid and immobile. The rigidity was pronounced and accompanied by distension and tympany. There had been no vomiting.

I decided to keep the patient under very close observation until the diagnosis was definite.

Six hours after admission he commenced coughing; the sputum was tinged with blood. The hæmoptysis increased and with the increase of the pulmonary signs the abdominal

signs became less definite and the picture changed towards morning to an acute pleuritic condition. Subsequently a marked effusion occurred and persisted for fourteen days. The fluid was gradually absorbed; tapping was not necessary.

This case is of interest from the comparative rarity of its cause and the acute and confusing signs that resulted. I regard the hæmoptysis as due to a mechanical distension of the bronchioles, brought about by sudden volatilization of aspirated petrol. The abdominal signs were evidently referred through the intercostal nerves; the pleuritic effusion was secondary to the trauma.

## Reviews.

### TROPICAL DISEASES.

In his book, "War Against Tropical Disease," Dr. Andrew Balfour, who was for some years Director of the Wellcome Research Laboratories at Khartoum, has brought together a series of addresses and papers on different aspects of tropical sanitation.

The book consists of seven complete papers, six of which have appeared in various journals but have been revised and slightly altered for this publication and one paper written especially for this work. The titles of the papers will give an idea of the scope of the work: "Some Aspects of Tropical Sanitation," "Tropical Problems in the New World," "Preventive Inoculation Against Typhoid and Cholera," "The Medical Entomology of Salonica," "Sanitary and Insanitary Makeshifts in the Eastern War Areas," "The Problem of Hygiene in Egypt," "The Palm from a Sanitary Standpoint."

The collection is a very mixed one and most aspects of tropical sanitation and the prevention of disease in tropical countries are touched on in one or more of the papers. The whole forms a very interesting account of the problems to be met with and the difficulties which have to be overcome in tropical countries.

The first paper was an address delivered to the Sanitary Inspector's Association and deals in a somewhat popular way with sanitation difficulties in Khartoum.

In "Tropical Problems in the New World," Dr. Balfour recounts in an extremely interesting manner his observations made during a trip through the West Indies, Venezuela, Columbia and Panama. The first words of this paper are: "To anyone gifted with what we may call the sanitary eye" and Dr. Balfour certainly had the sanitary eye and saw many things which another might have missed. The paper is excellently illustrated with photographs.

The section on "Sanitary and Insanitary Makeshifts in the Eastern War Areas" deals largely with sewage and refuse collection and disposal and contains much information which would be of great service in improving the sanitary conditions in our own country districts. Some of the latrine arrangements described and pictured are extremely simple and effective.

"The Problem of Hygiene in Egypt" deals largely with administrative details and could be studied with profit by anyone concerned with public health administration on a large scale. The schema of the organization of officials under a ministry of health, as set out in tables, seems to be very complete.

The last paper in the book, on "The Palm from a Sanitary Standpoint," treats in a very entertaining manner with palms from all aspects, but we wonder what the object was in placing it in a book of this kind.

<sup>1</sup> "War Against Tropical Disease, being Seven Sanitary Sermons Addressed to All Interested in Tropical Hygiene and Administration," by Andrew Balfour, M.D., B.Sc., F.R.C.P., D.P.H., Director-in-Chief of the Wellcome Bureau of Scientific Research; 1920. London: Published for: Wellcome Bureau of Scientific Research by Baillière, Tindall & Cox; Crown 4to, pp. 220, with 182 illustrations. Price: 12s. 6d. net.



## The Medical Journal of Australia

SATURDAY, MARCH 18, 1922.

### The Wastage of Infant Life.

THE discussion on infantile mortality which appears on another page of this issue, should serve a very useful purpose in stimulating thought and in prompting the enterprising members of the medical profession and of the general community to translate words into deeds. Dr. J. S. Purdy and the speakers who followed him, dealt with many aspects of this highly complex problem. It is true that few, if any, new facts were unearthed. The presentation, however, of the subject has been well adapted to the special conditions obtaining to-day in New South Wales and perhaps in Australia generally.

Everyone is agreed that the problem of the living and healthy child is of urgent importance to Australia. The future of every young nation or race lies hidden behind a thick veil of almost impenetrable density. National or racial prosperity and virility depend on all sorts and kinds of circumstances. Some of the determining factors would seem to lie within the realm of accident. The presence of a real statesman, with great resource and a wide outlook, a man capable of evolving a practicable remedy for the most pressing national ills, a leader who gains the confidence of the enlightened and carries conviction with his argument, is surely a matter of chance. Such a man cannot be summoned to appear at any given place and at any given time to lead the country over the obstacles created by ignorance, prejudice and selfishness, attributes of the ordinary parliamentary circles. A great statesman is needed to handle the problem of the infant from the legislative point of view. Then this question is influenced by the prevalence of industry, by the absence of financial stringency, by the removal of conflict between employers and the employed, by the freedom of action of those who are competent to establish great commercial undertakings, which

are needed to lend independence to a land as isolated as is Australia. Nor should it be forgotten that national prosperity and virility of the citizens is profoundly influenced by meteorological conditions over which man has no control. Indeed, so many circumstances concerned in this wide problem rest without the power of men that it would almost seem as if it were futile to introduce measures aiming at the improvement of a young nation. It is said that man proposes and God disposes. If man is content merely to propose, nothing can go right and the fates will see to it that the penalty for inertia will be enforced. It must be admitted that any influence which can safeguard the lives of infants, must exercise a powerful, profound and lasting effect on the future of a nation. Deliberate action can accomplish a saving of infant lives and can enhance the health and well-being of the young.

The child population depends on the birth-rate, on the pre-natal death-rate, on the infantile mortality and on immigration. For the present there does not appear to be any immediate prospect of a great acceleration of the arrival of young immigrants into the Commonwealth. The birth-rate and the death-rates are or should be more directly subjected to our control. Both are complex and call for patient and close scrutiny. The birth-rate depends on the health of men and women, on the desire on the part of women to bear children, on the social life of the community, on the degree of attention paid to the care of the pregnant women, on the financial stability of the nation as a whole, rendering it easy for young men to marry and on a thousand and one other circumstances. The birth-rate in Australia is decreasing and has already become alarmingly low. In 1909 forty-four babies were born in Russia for every thousand of population. Rumania and Bulgaria have high rates; the rate in Quebec and in Japan and that affecting the white element in South Africa may be regarded as relatively satisfactory. In Australia in 1914 it was 28.05; in 1919 it was but 23.78 and there was a slight recovery in 1920 to 25.74 per thousand of population. If nothing is done, our birth-rate may sink to the level of that of France and Switzerland, a rate of racial death. Mention should be made of the fact that in New Zealand the birth-rate in 1919 was only 21.5 per thou-

sand of population, a level well below the line of safety.

The use of anti-conceptional measures and the practice of deliberate interference with pregnancy are two large factors contributing to a low birth-rate. Both threaten the future of Australia. During the years 1900 to 1902 the nuptial births per thousand married women in Australia stood at 235.8, as compared with 314.6 in the Netherlands. At the same time, the births out of wedlock in Australia, calculated for each thousand unmarried women, stood at 13.3 as compared with 8.5 in England and Wales and 3.8 in Ireland. In France it was 19.1. The artificial termination of pregnancy is accounted a criminal offence. How often are serious steps taken to sheet the offence home to the malefactor? Where are the records of convictions for procuring abortion? The proof is often difficult to obtain, but since the matter has so serious a national significance, surely an attempt could be made to check this horrible and wide-spread traffic.

Sterility caused by inflammatory lesions in women, usually the result of a gonorrhœal infection, is another cause of a low birth-rate. The pathology of these conditions has been worked out long ago. It is vain to endeavour to deal with extensive affections of this kind. The sterility is established and cannot be undone. In Australia we have legislation aiming at the control of venereal infections in every State. To a great extent these Acts are administered in a half-hearted manner and no serious attempt is being made to enforce all the stringent provisions. The medical profession has it in its power to grapple with this terrible series of maladies and to apply measures which would tend both to reduce the amount of infection and to prevent the existing infection from inflicting irreparable damage on the nation.

There is much work to be done in regard to the prevention of pre-natal death of the infant. Dr. Fourness Barrington has called attention to one extremely important cause of still-birth and of death within a week of birth. The improper, the untimely and the injudicious use of forceps is incriminated. Cranial trauma, resulting in hæmorrhage from the vein of Galen, should be regarded as the signal of incompetence in obstetrics. The medical profession

must justify itself and must prove that the confidence of the public is not misplaced. An inquiry into the cause of every death of a foetus *in utero* or during parturition, conducted by a competent medical board, would soon compel medical practitioners to exercise skill and care in effecting a delivery or to give up the practice of obstetrics.

Another source of pre-natal death is caused by untreated syphilis in the mother. The adoption of the Melbourne plan, proposed by Dr. Fairley and Dr. Fowler, in all parts of the Commonwealth would be of the greatest benefit. This plan should be embodied in a general campaign for the control of the unborn babe. There is no difficulty in planning the scheme. It demands the expenditure of a considerable amount of money, but, if carried out effectively, it means the saving of countless lives. Is there anyone bold enough to deny that this result would be cheap at any price? The care of the mother during the whole of her pregnancy, the regulation of obstetric practice, the study of every dead infant and the adoption of all rational measures to prevent the death of infants from the discovered causes comprise the main stones on which the structure has to be erected.

In the last place, there is the question of the infantile mortality. It might seem satisfactory that, while the infantile mortality toward the end of last century in England and Wales was 156 per thousand births, in 1920 it was 69 in Australia. But there are some fallacies in this connexion. The lower birth-rate reduces the number of unwanted children in the world. The wastage is to some extent being transferred by a reduced production of life. As the circumstances of life change, it should be possible to readjust our conceptions of a satisfactory level of child life. Nothing could be more fatal than to regard any infantile mortality rate that is likely to occur as either irreducible or satisfactory.

#### THE DOCTOR'S NAME PLATE.

THE FEDERAL COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION IN AUSTRALIA has recently dealt with the question of the abuse of the name plate which medical practitioners usually display outside their professional chambers or residences. The proposal was made that the Committee should express the

opinion that it was undesirable for a medical practitioner to display a name plate on which the specialty practised was announced. The Committee, after careful review of the history of name plates in Australian cities and of the practice that has grown up during the course of many years, came to the conclusion that there was no objection to the announcement on the plate of a specialty, provided that the practitioner confined his activities exclusively to that specialty. The finding will stand as the policy of the British Medical Association in Australia for the present. It may be regarded as a policy of expediency rather than a counsel of perfection.

Medical practitioners find it convenient to indicate the place where they may be consulted by affixing a name plate outside their premises. The object is not to attract practice, not to invite a chance patient to enter, but to guide the patient wishing to consult a particular practitioner to the proper address. In an emergency a doctor's name plate is used by the messenger for the purpose of obtaining medical aid as speedily as possible. Under ordinary circumstances the indication should not have the object of arresting the attention of a wandering patient seeking medical aid. On the other hand, there would be no real objection to the reception by a medical practitioner of a patient who elected to consult a stranger merely because the name plate was encountered. Many valuable practices have been built up by young practitioners putting up a plate and waiting. Someone is sure to come sooner or later, although the early callers not infrequently are those who avoid the doctors of longer standing because of unpaid accounts. The plate, however, should be of modest dimensions and it is usually held that there is no need for any indication other than the practitioner's name. The distinction between the name plate of a medical and that of a dental practitioner may be left to the latter. Usage frequently determines the form of these insignia. In some towns and cities in Great Britain even the affix "Dr." is by common consent replaced by a plain "Mr.," even when the practitioner is a graduate in medicine and practises as a physician. More often practitioners either affix "Dr." to their names, or employ other words to indicate that they are medi-

cal practitioners. A few years ago the Royal Colleges of Physicians and Surgeons in England granted their diplomates the right to use the courtesy title "Doctor," provided that they did not convey the impression that they possessed a degree of any university.

The earliest expansion of the simple name plate was in connexion with ophthalmic practice. It was claimed that an ophthalmic surgeon, not being prepared to give medical advice, except for affections of the eye or sight, sought to prevent a patient in search for a general practitioner, a physician or a surgeon from wasting his time by entering his consulting rooms. If such chance visits were common, they would undoubtedly constitute a source of annoyance both to the ophthalmic surgeon and to the patient. The former would find it necessary to expend a little time in explaining that he confined his practice to ophthalmic surgery; the latter might be kept in a waiting room for a considerable time on a vain errand. The argument used against the display of words indicating a *bona fide* specialty is that it might be regarded as an advertisement.

If ophthalmic surgeons are justified in announcing this specialty on their name plates, the same privilege must be accorded to laryngologists, otologists and other genuine specialists. There is one difficulty attaching to this declaration of policy. The Federal Committee has not attempted to define what a specialty is. It is known that grave abuses occur. An enterprising practitioner might claim that "diseases of the blood" constitute a specialty. It would be but one step further to claim that, as nearly every disease affects the blood to a greater or lesser extent, this practitioner would confine his practice to this "specialty." It is quite obvious, however, that the Federal Committee did not contemplate the recognition of abuses of any kind. During the course of the discussion, it was pointed out that the Council of the Branch of the British Medical Association concerned would be quite capable of dealing effectively with attempts to evade the ethical rules involved in this question. The majority of medical practitioners will, no doubt, adopt a dignified attitude in regard to their name plates and avoid the display of anything which might be regarded as unusual.



## THE ORIGIN OF BLOOD CORPUSCLES.

It would be a platitude to state that the physician cannot hope to understand and deal with a pathological process involving any particular tissue, unless he has mastered the subject of the structure and function of that tissue and has information concerning the genesis of the individual elements constituting it. Unfortunately the bio-chemistry, the physics, the morphology and the embryology of the integral parts of the body are but imperfectly developed. This necessarily means that the diagnosis, management and treatment of many pathological processes are faulty in proportion to the lack of the fundamental facts. Notwithstanding much profound study and the exercise of a great deal of ingenuity, the source of the blood corpuscles, the bio-chemistry of the cytoplasm and of the granules of the various cells, the bio-physical behaviour of erythrocytes and leucocytes toward their varying environment and the significance of variations from the apparent normal in structure are matters which demand fuller information before the clinician can hope to cope successfully with the anæmias and the leuchæmias. As long ago as 1878 Paul Ehrlich called attention to the distinction between certain granules met with in leucocytes and the granular appearance in cells produced by unskilled coagulation of the cytoplasm. Even at this early date he was able to demonstrate that these granules could be classified according to the affinity they possessed for certain chemical dyes. The distinction between acidophile, neutrophile and basophile granules soon gained recognition. It was not long before the need for a definite genetic classification of leucocytes was felt, more especially since in certain disease conditions the usual distribution of the leucocytes appeared to be altered. To understand the significance of alterations in the proportional occurrence of the various forms of leucocytes, attempts were made to investigate the functions of the chromatin and granule contents of these cells. In 1887 a new method of investigating cellular contents was introduced into the study of the histology of the cells of the central nervous system. This process was known as vital staining and consisted in the introduction of harmless dyes, which acted as indicators, into the circulation, in order that cellular granules might be differentiated from artefacts. Methylene blue was employed at first for this purpose. In 1891 it was demonstrated that much information could be gathered from the application of vital staining of white blood corpuscles. Methylene blue was soon replaced by the nitroso-dimethyl-aniline derivatives. Other dyes were employed for the purpose of indicating by colour combinations with certain granules the reaction of the latter. Neutral red proved itself of special value in this work. It was found that living elements with an alkaline reaction possessed the capability of claiming from even a weak solution of neutral red all the dye and assuming an orange red colour. The results of the staining of living blood contrasted with those of the staining of fixed blood films. It was on the basis of this study that Ehrlich evolved his hypothesis of the distinction

between leucocytes of myeloid and leucocytes of lymphatic origin. Opinions differed concerning the part played in the development of leucocytes from the cells of the endothelium of young blood vessels. Further, it was claimed by Naegeli and others that young, embryonic connective tissue was capable of giving rise to myelocytes, even in the absence of endothelial cells.

Within recent times the study of the development of blood cells and of their classification according to their genesis has been taken a stage further by the direct observations of embryologists. An important contribution to this study has been published by Dr. Florence R. Sabin.<sup>1</sup> This observer watched the development of the living blastoderm in the chick from the second day of incubation. The *area pellucida* of the yolk sac in the hanging drop preparation can be analysed under the oil immersion system and all the details of the mesoderm followed. Dr. Sabin describes the movement out of the mesoderm of a new type of cell which becomes differentiated to form blood vessels. Its cytoplasm is dense, basophilic and azurophilic. Soon the cell divides and it is then seen that the segmented cells display the tendency to stay together to form syncytial masses. From these masses sprouts are thrown out to join similar masses in the neighbourhood. The process repeated, a plexus of out-growths appears. The next stage consists in the liquefaction of the central part of the masses to form blood plasma, while the peripheral differentiation of angioblasts occurs in the stage of two somites. At the stage of five or six somites the angioblasts approach the axial line of the embryo as forerunners of the endothelium of the heart and aorta. She has not been able to determine at what stage the differentiation of new cells ceases.

Close observation revealed that endothelium formation is primary and that the liquefaction takes place inside angioblasts occurring in single chains. This means that the lumen of the vessels is in embryological terms an intra-cellular structure and not a tissue space.

On the second day both angioblasts and endothelial cells give rise to red blood corpuscles. This takes place in the stages of from seven to eleven somites. The heart begins to beat at the stage of ten somites and the circulation starts when the chick possesses sixteen or seventeen somites.

In order to follow the development of the leucocytes more closely Dr. Sabin mounted the entire blastoderm, opened the amnion, pushed aside the allantois and cut off the yolk sac close to the embryo. The specimen spread out and mounted can be kept alive for three, four or five hours. Neutral red was employed as a means of staining the living granules. She endeavoured to obtain permanent specimens after the living tissues had been studied. Further, drops of blood were obtained from the early vessels and studied immediately. From these specimens, treated in various ways, she was able to distinguish three different strains of blood cells. In the first place, cells arise from the endothelium. These are

<sup>1</sup> Bulletin of the Johns Hopkins Hospital, October, 1921.



the red blood corpuscles and the monocytes. In the second place, there are granulocytes and in the third place there are the lymphocytes. The red cells begin to differentiate on the second day of incubation. On the third day the monocytes appear. On the same day the endothelium gives rise to extra-vascular cells, which she identifies as the clasmatoocytes of connective tissue. The granulocytes arise from a special type of cell from the mesoderm.

The primitive cells on the second day of incubation are megaloblasts. The cell is completely occupied by granules and the basophilic cytoplasm. From the fourth to the sixth day the granules are grouped around the nucleus into rosettes or wreath forms, while on the seventh day the granulation becomes reticulated. As hæmoglobin appears in the cells, the basophilia and reticulation disappear and the cells, which enter the circulation, are seen to contain an acidophile cytoplasm and very few granules.

On the third day of incubation the endothelium takes up neutral red stain in the granules aggregated around the nucleus and scattered about the thin periphery of the cytoplasm. The endothelium then develops into two layers. The cells of the inner row enlarge, protrude into the lumen of the vessel and throw out a film of cytoplasm. Vacuoles appear before these cells detach themselves from the endothelium. The endothelial cells are seen to be endowed with the power of phagocytosis. This power is possessed also by the freed cells from the reduplication. Almost simultaneously large numbers of vacuolated cells are formed outside the vessels from the endothelium. These cells tend to become larger than the intra-vascular monocytes and their vacuoles are also larger. They are the clasmatoocytes. Aschoff termed the vacuolated cells with granules possessing affinity for neutral red histiocytes. The endothelial cells and the two forms of histiocytes as phagocytes take up particulate matter and débris. Eventually they give up their loads. Dr. Sabin states that she has observed clasmatoocytes arising also from angioblasts.

So far Dr. Sabin's observations confirm and extend the teachings of previous hæmatologists and embryologists. The differentiated mesoblastic cells give rise to endothelium, erythroblasts and erythrocytes, large mononuclear cells and the transitional forms of Ehrlich. When she comes to relate the first appearances of the granulocytes, she has a less definite message to deliver. Although these cells appear close to a vessel, she has not been able to determine that they are derived from endothelium. Indeed, the analogy between the granulocytes of the chick and the neutrophilic myelocytes of mammals suggests that they have another origin. At first the granulocytes are studded with fine granules with a pseudo-eosinophilic reaction. They have the appearance of a single angioblast, but it does not seem that there is a chemical combination of the cell contents with neutral red. The differentiation between angioblasts and primitive granulocytes is determined by the fact that the former remain as single cells, while the latter occur in clumps or masses. The cells then

undergo rapid changes. The nucleus becomes eccentric, the centre of the cell is occupied by a centrosphere and a crescent of fine granules staining a pink colour with neutral red is seen around the centrosome. It reveals a definite positive chemiotactic reaction toward the vessel wall. Quite early the nucleus becomes indented, the concave side being directed toward the centrosome. Dr. Sabin claims that the granulocyte thus becomes a leucocyte, even in its primitive state.

Dr. Sabin has little that is new to tell of the lymphocyte. It appears as a very small cell in the chick, has a characteristic nucleus and its cytoplasm embraces some azurophilic granules. Their specific function in the animal economy is not very easy to follow. They are supposed to be involved in immunity processes and to be peculiarly sensitive to the action of X-rays. They are formed outside the blood vessels, chiefly in the lymphatic glands and the spleen. Like the two other types of cells, they have a connective tissue origin, but, unlike them, they have nothing in common with endothelial cells. The granulocytes or polymorphonuclear leucocytes and the monocytes or large mononuclear cells and transitional forms are phagocytes, though not to the same degree as endothelial cells. The former are actively endowed with amœboid movement and are highly differentiated cells with specific functions, probably determined by their peculiar granulation. The latter are slowly moving cells, standing physiologically midway between the endothelial cells and the leucocytes proper. We have reproduced the main details of Dr. Sabin's researches with the object of inciting the interest of the medical practitioner in the genetic and bio-chemical characters of these blood cells. The information is not merely academic; it has an immediate and peculiar significance in the study of the blood diseases.

#### THE BENZYL ESTERS.

DRS. CARL NEILSEN AND JOHN A. HIGGINGS have continued to investigate the pharmacological action of several of the benzyl esters.<sup>1</sup> They have found that benzyl alcohol causes an immediate and powerful relaxation of the longitudinal muscles of the intestine, a lowering of blood pressure and a depression of respiration. This action is more gradual when an ester is substituted. In the case of the simple esters, as has been suggested by Macht, the action on unstriated muscle is proportional to the rate of hydrolysis. This is not the case with the benzyl esters containing substituted groups; some other factors appear to be involved. Of the series investigated benzyl acetyl-salicylate and benzyl salicylate proved to be the most powerful. Attention should be called to the arrest of respiration which at times follows the injection of these complex esters. It is questionable whether drugs which produce so powerful an effect on the unstriated muscle of the intestines and of the blood vessels, can be regarded as harmless.

<sup>1</sup> *The Journal of Laboratory and Clinical Medicine*, November, 1921.

## Abstracts from Current Medical Literature.

### SURGERY.

#### Perforations of the Œsophagus.

MAX BALLIN and HARRY C. SALTZSTEIN (*Surgery, Gynecology and Obstetrics*, January, 1922) discuss perforations of the Œsophagus. They report a case of a patient, aged fifteen years, who, in January, 1920, developed right-sided lobar pneumonia. He vomited after every feeding during the first five days of his illness. For five weeks his temperature during the evening varied between 38.3° C. and 38.8° C.. Later he noted a sense of fullness in the mid-sternal region during swallowing. At breakfast a few days later he vomited some foul pus and signs of right pyo-pneumothorax appeared. The right pleural cavity was drained. A transpleural Œsophageal fistula formed, through which the greater part of his food passed. The skiagram taken after a bismuth meal revealed the Œsophagus perforated at the level of the fourth dorsal vertebra. The fistula closed after some months and the patient became quite well. Perforations of the Œsophagus leading to fistulae may be in the cervical part or thoracic part. Fistulae in the cervical part of the Œsophagus are the results of stab wounds or ulceration from foreign bodies. In the thoracic part, if the fistula communicates with a bronchus or lung or trachea, death follows as a result of pulmonary infection. When the aorta or pericardium is involved, death is more rapid. In congenital atresia of the Œsophagus there has been incomplete separation of the trachea from the Œsophagus, the pharynx usually ends blindly about the cricoid cartilage, the cervical part of the Œsophagus is missing and the distal part opens into the trachea just above its bifurcation. The children with these congenital defects die early. Carcinoma of the Œsophagus and aneurysm of the aorta are responsible for many perforations of the gullet, generally at the level of the fourth dorsal vertebra. Traumatic perforation may occur during attempts to dilate the Œsophagus for stricture or cardiospasm or during the passage of an Œsophageal bougie. Syphilis, tuberculosis and peptic ulcer cause the majority of inflammatory perforations. Peptic ulcer of the gullet is not common, but up to 1910 fifteen instances had been collected, of which four had perforated, one into the aorta, one into the right pleural cavity and two into the peritoneal cavity. In the tuberculous perforations the primary lesion is generally in glands in the mediastinum. A caseous abscess forms, which opens into the Œsophagus and sometimes into the trachea or bronchi as well. Patients with transpleural fistulae opening on the surface may live for many years, as in a case recorded by Osler. This patient was alive twenty-four years after the perforation, with the fistula still patent.

#### Cardiospasm and Diffuse Dilatation of the Œsophagus.

FRANK SMITHERS (*American Journal of the Medical Sciences*, September, 1921) discusses the diagnosis and clinical manifestation of cardiospasm associated with diffuse dilatation of the Œsophagus. He draws a distinction between "spasm of the cardia" and "cardiospasm." He states that cardiospasm is associated with hypertrophy of the cardiac sphincter and diffuse dilatation of the Œsophagus, but spasm of the cardia is a transient lesion and it is only after a long time that it produces hypertrophy. The hypertrophy of cardiospasm he compares to the hypertrophic stenosis of the pylorus in infants. Among the causes he refers to primary atony of the muscular coats of the Œsophagus, paralysis of the circular fibres, congenital predisposition and degenerative changes in the vagi nerves, as well as such organic lesions as ulcer and carcinoma of the cardia. He leans to the theory of incoordination of the neuro-muscular reflex. Of the seventy-six cases studied, the average age was 39.2 years, the youngest being nineteen and the oldest seventy. Neither occupation nor previous ailments seem to have any causative relation to the condition. The duration of the disease varies between two months and twenty years. The commonest symptom is dysphagia. Beginning with discomfort, this symptom may progress till actual pain is felt. Liquid foods are more prone to produce dysphagia than solids: an important point in distinguishing the condition from stenosis due to ulcer or cancer. Following the dysphagia is regurgitation of food. This may be sudden and expulsive, the vomitus being the food just taken. There is no "gastric" odour. At other times in long-standing cases there may be food retention in which food taken during the day may be vomited in the evening or food may be retained as long as a week in the dilated Œsophagus and when regurgitated it is highly offensive. Much mucus may be present in the vomitus. Salivation is often excessive. Nearly all patients lose weight. The passage of a stomach tube or bougie is difficult, owing to the elongation of the Œsophagus and the consequent eccentric position of the cardia. Mixer, of Boston, years ago suggested that a silk cord be swallowed and the bougie be passed along it. This method often succeeds, but occasionally the cord may be retained in the Œsophagus for days. Smithers points out that lateral skiagrams of the Œsophagus give the best views of the parts. The dilated pyriform Œsophagus is seen tapering to the cardia, which is not deformed as in cancer.

#### Traumatic Pancreatitis.

H. B. DELATOUR (*Annals of Surgery*, October, 1921) discusses the subject of traumatic pancreatitis. In spite of the large number of patients with severe abdominal injuries admitted to hospitals in New York, very few cases of pancreatic injury are found at operation. In 965 penetrating abdominal

wounds Wallace found only five instances of injury to the pancreas. Fraser and Drummond found only one instance in three hundred cases. Delatour's patient was a boy of thirteen years who was knocked down, the wheel of a cart passing over his abdomen. He suffered from moderate shock and pain in the epigastrium on admission. During the first twelve hours he complained of severe attacks of pain and vomited frequently, the vomiting relieving the pain. At the end of twenty-four hours the pulse rate was 100 and the pain was still present. The abdomen was then opened on the provisional diagnosis of laceration of the liver or mesentery. In the peritoneal cavity blood clots were found. The head and body of the pancreas were lacerated. Extensive fat necrosis was present. The injured pancreas was drained with cigarette drains. Post-operative shock was considerable. Some weeks later the boy had developed a large swelling in the region of the pancreas, probably a pseudo-pancreatic cyst. This was drained through the posterior abdominal wall, three pints of clear fluid being evacuated.

#### Surgical Treatment of Angina Pectoris.

THOMAS JONNESCO (*La Presse Médicale*, March 9, 1921) records a case of *angina pectoris* in which surgical treatment was successful. The patient was a man, aged 38 years. He was admitted to hospital in 1916 with a severe attack. Jonnesco resected entirely the left cervical sympathetic and the first thoracic ganglion. The pulse-rate, which had varied from 44 to 52, increased on the third day to 68 and when seen in 1920 the patient had never had a subsequent attack and his pulse-rate was 72. Spinal anaesthesia was employed, stovaine and strychnine being used. The operation was conceived from the report of Francois Frank, who described a relationship between the cardio-aortic nerve plexus and the clinical manifestations of *angina pectoris*. Although resection of one side was sufficient in this case, Jonnesco considers it advisable to practise resection of both sides, even when unilateral resection has been apparently successful.

#### Cysts and Fistulae of the Thyreo-glossal Duct.

P. K. GILMAN (*Surgery, Gynecology and Obstetrics*, February, 1921) points out that a persisting remnant of the thyreo-glossal duct may remain quiescent for years till an acute inflammation or a small swelling proclaims its presence. The primary lesion is located in the mid-line of the neck or tongue. Rupture of the cyst causes a cervical sinus to develop, which is never congenital and always single. These facts distinguish the condition from a branchial cleft, in which the cyst or sinus is always bilateral and congenital. Thyreo-glossal abnormalities are more common in women than in men. At the base of the tongue the light colour shining through the mucosa over the cyst is quite different

from the dark red or purple of a misplaced thyroid gland. In regard to cysts in the floor of the mouth, differential diagnosis may be difficult and exposure or even section of the cyst may be necessary. Dermoids reveal themselves by their contents.

## GYNÆCOLOGY AND OBSTETRICS.

### Drainage in Pelvic Abdominal Surgery.

HOWARD KELLY (*New York Medical Journal*, October 5, 1921), after briefly reviewing the history of abdominal drainage, asks why, with all the increased efficiency in operative clinics, there is yet room for drainage. By the judicious use of a drain for from thirty-six hours to several days one of three things occurs. In the first place, the surgeon may be assured that there is no collection of fluid about the field of operation. In the second place, it may relieve the patient of much discomfort. In the third place, it may carry off serum and blood. He lays down the following rules to indicate when it is necessary to use a drain: (i.) It should be employed whenever infectious material has been widespread and there remain some lingering suspicious areas. This includes soiling by bowel contents. (ii.) It should be employed whenever the adhesions have been so extensive and firm about the floor and walls of the pelvis that the occurrence of considerable sero-sanguineous weeping is almost certain. (iii.) It should also be employed after the removal of a cancerous uterus. (iv.) He recommends a small special drain after myomectomy as a rule when unaccountable bleeding occurs. (v.) In the last place, he advocates the use of a drain when there is any doubt as to the expediency of closing the wound without drainage. If the trouble in the pelvis is very severe, a large drain of washed iodoform gauze in protective rubber tissue should be laid through the vaginal vault to cover the pelvic floor loosely. This drain should not be packed tightly, nor should it be allowed to extend upwards or downwards between loops of bowel. Obstruction is apt to follow the employment of this form of drainage. The drain should always be peripheral, i.e., attached to or covering some part of the abdominal or pelvic wall, and should lead to the surface by the shortest possible route. A free vent should be provided. If rubber tissue does not protect the avenue of exit from the drain, the latter will adhere and it may be necessary to remove it under anaesthesia. There is no objection to a rubber tube in the centre of the gauze; it is at times a great help. In the presence of all severe lesions necessitating drainage, the drain should be through the vaginal vault, for it is to this region the fluids necessarily gravitate. Kelly also describes what he calls a provisional or "tell-tale" drain which he has found most useful. It is a small drain about the size of a cigarette or a little larger. It is peripheral in two senses; it is laid through the

abdominal wall at or near the lower angle of the median incision, above the symphysis, reaching within the peritoneal cavity. No attempt is made to place the drain in contact with the field of operation. He uses such a drain in the operation of myomectomy, as well as where considerable oozing is to be expected, but not when there is reason to expect immediate infection. Its sole function is to let out the excess of serum and blood that wells up from the pelvis, seeking the direction of least resistance. It is temporary in character and is removed as soon as the outward flow abates and the dressings remain dry, usually from twenty-four to thirty-six hours. At times he stabs through the peritoneum at one side of the lower part of the incision, just before closing the wound. The whole peritoneal incision is closed with catgut. The drain is then brought out through the lower angle of the incision. The removal of the drain should be commenced after twenty-four hours, unless there is still a free discharge. As soon as no decided discharge can be seen on the dressings, say, in six hours, the small drain should be withdrawn by a twisting motion.

### Hydatidiform Mole.

F. I. VELASCO (*Journal of the Philippine Islands Medical Association*, July-August, 1921) has reported forty cases of hydatidiform mole in patients admitted to the Philippine General Hospital from 1911 to 1920. During that time there were 3,187 maternity cases, the case incidence of hydatidiform mole being thus 0.5%. All but two patients were below forty years of age and 70% were multiparæ. Three cases were associated with the presence of a foetus, 92.5% were not. Only eight gave a history of previous uterine complaints, while in six there was a history of repeated abortions and miscarriages. Only two patients died. Death was due to great loss of blood. He draws the following conclusions: Hydatidiform mole is a very frequent condition. It is more frequent at the height of reproductive activity and in multiparæ. It usually begins early and is rarely associated with a foetus. It is definitely known to be a disease of the chorion, but the primary factor in its causation is still a puzzling question. In only a very small percentage of the cases is the condition associated with previous uterine disease and the character of the patient's previous obstetrical record has no apparent relation to its aetiology. It is very probable that the primary condition is to be found in the uterus. It is seldom fatal, but treatment, though successful, is not devoid of immediate or remote danger, such as perforation of the uterine wall or puerperal infection.

### Varicose Veins of the Female Pelvis.

LUDWIG A. EMGE (*Surgery, Gynecology and Obstetrics*, February, 1921) describes a varicose condition of the pampiniform plexus, which he investigated from 1913 to 1919 in a series of thirty-five patients. These veins have

little support in the broad ligament and their general course on the posterior abdominal wall is similar to those of the spermatic veins in the male. He considers that acquired primary varicose veins of this type may follow long pelvic congestion from any cause. He associates a definite pathology with the condition, based mainly on back pressure, such as cystic and sclerotic ovaries, hypoplastic endometritis, purplish discoloration of the mucosa of the cervix, with later hypertrophy of the cervix. The symptomatology centres round a dull, deep, aching pain in the lower abdomen, usually left-sided, which grows worse when the patient stands for a long period and is relieved when she lies down. Retroversion is frequently associated. He claims that if the patient's position is changed from the recumbent to the upright position during examination, the veins can be felt to fill and to form an easily compressible and doughy tumour. The veins naturally empty when the patient lies in the Trendelenburg position. The diagnosis is aided by the normal leucocyte count. In mild and early cases the patient can be permanently relieved by conservative measures aimed at reducing pelvic congestion, while in more advanced cases they are completely relieved by high suspension of the uterus, as, for instance, by a modified Gilliam operation and shortening of the uterosacral ligaments.

### Chorio-Epithelioma.

SAMUEL H. GHEIST (*Surgery, Gynecology and Obstetrics*, May, 1921) has reviewed the literature dealing with the type of tumour known as chorio-epithelioma and the various classifications that have been made. He finds that there are two groups of tumours arising from the chorionic epithelium included under the term chorio-epithelioma. They are (i.) the typical chorio-epithelioma, better termed chorio-carcinoma, and (ii.) the atypical chorio-epithelioma, better termed syncytioma. There are numerous transition stages between these two groups. Stages in which the condition is really not a tumour, but a state representing an exaggerated reaction of pregnancy, have been grouped under the caption atypical chorio-epithelioma. For this class the term syncytial hyperplasia is suggested. The diagnosis from curetted or expelled material is extremely difficult, except in the clear-cut cases of the two groups. Prognostic significance deduced from the histological structure is doubtful in the transitional types. Indication for operation is set by a positive diagnosis of chorio-carcinoma. Indication to wait is determined by a positive diagnosis of syncytioma. In cases of syncytioma, hysterectomy is indicated only by the clinical course. In transitional cases hysterectomy is indicated. Abdominal hysterectomy is the operation of choice. If done early, it allows an excellent prognosis in syncytioma and a satisfactory prognosis in chorio-carcinoma.



## British Medical Association News.

### SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held at the B.M.A. Building, 30-34, Elizabeth Street, Sydney, on December 2, 1921, Dr. FOURNESS BARRINGTON, the President, in the chair.

#### Extirpation of the Right Lung of a Dog.

Dr. P. FIASCHI, O.B.E., exhibited a dog whose right lung had been extirpated seven and a half years before. He stated that he showed the dog as a surgical curiosity to illustrate the fact that life could be supported by one lung, even when the other lung had been removed at one coup, without giving the remaining lung time to compensate itself to the altered conditions. He had carried out a series of these experiments between 1911 and 1914. The extirpation had been carried out under insufflation anaesthesia.

After dealing with the technique adopted, as well as that elaborated by Dr. W. Meyer, Dr. Fiaschi stated that some of the animals had had a sero-fibrinous pleurisy at varying periods after the operation. In some death had resulted. In other dogs the extirpations had been quite successful. One bitch had subsequently gone through pregnancy. Another bitch had given birth to a litter of puppies, but had died in the second labour. The skiagram of the chest of the dog exhibited revealed that the remaining lung had apparently not increased in size.

#### Bucknall's Operation for Hypospadias.

Dr. JOHN FLYNN recorded a successful result of Bucknall's operation for hypospadias and presented the patient. It is proposed to publish the report in a subsequent issue.

#### Infantile Mortality.

Dr. J. S. PURDY, D.S.O., read a paper entitled "Infantile Mortality in New South Wales" (see page 287).

Dr. W. F. LITCHFIELD, in thanking Dr. Purdy for his admirable address, stated that the graphs exhibited demanded a great deal of careful study. The study of infantile morbidity and mortality was not merely an academic one. The best work had been carried out in England, more especially by the prominent medical officers of health. It was necessary at the outset to distinguish between the causes of death due to pre-natal agents and those due to post-natal influences. The post-natal influences should be regarded as environmental. In a report published under the auspices of the Medical Research Committee in 1918 Brend had placed this subject on a firm foundation. Dr. Litchfield stated that he had expounded views similar to those enunciated by Brend at the Australasian Medical Congress held in Adelaide in 1905. He exhibited charts extended from those which he had utilized at Adelaide. It was seen from the curves that the congenital causes of death had remained at a constant level and that there was no variation in regard to either class or period. At the present time they were unable to influence these factors, at all events to any considerable extent. It was quite different in regard to the post-natal or environmental influences. These included (i.) infections of the gastrointestinal tract and (ii.) infections of the respiratory system. In Australia the first was the more urgent problem, while in England, on the continent of Europe and in America respiratory affections were the more common. Dr. Litchfield held that the acute diarrhoeal diseases of infancy, although caused by many different organisms, formed a single entity from the epidemiological point of view. They occurred in epidemics and showed definite characteristics. He regarded the age incidence as being very important. Exhibiting a chart built up on English statistics, he showed that the number of deaths from diarrhoea was relatively small during the first month of life, that it reached its maximum in the fourth month and gradually declined until the end of the twelfth month. By the end of the second or third year it was barely appreciable among the causes of death. While the age charts revealed the individual's susceptibility to the disease, the charts showing the incidence of the disease in each month

of the year revealed its epidemic characters. Dr. Litchfield further pointed out that measles and scarlet fever did not influence the infantile mortality to a large extent until after the end of the first year. Deaths from tuberculosis were uncommon in children under six months of age.

In the next place, he examined the infantile mortality curves in their relation to the respiratory diseases. He showed that pertussis was periodic and did not occur every year. On the other hand, bronchitis, the infective bronchopneumonia of infants and possibly other forms of pneumonia accounted for the respiratory deaths. The curve reached its apex at the twelfth month of life. Dr. Litchfield declared that hospitals for babies were extremely dangerous places. Babies of the most susceptible age were removed from their mothers and placed in the midst of infection. All that was required to start the conflagration was for these children to come into contact with certain pathological organisms. It was incumbent on the authorities at the infant hospitals to see that infections did not arise among the infants admitted. The surgeon took care that sepsis did not spread from patient to patient in the wards under his control. Similarly, the children's physician should take steps to prevent the spread of infection in medical wards.

After Dr. Litchfield had demonstrated a series of interesting charts, he stated that the question should be approached with caution. He did not think that the reduction in the death-rate could have been entirely due to Dr. Armstrong's campaign. A similar reduction in the infantile mortality had taken place in New Zealand, in the South Island as well as in the North. The improvement was earlier than the introduction of any breast feeding campaign. In conclusion, he entered a strong plea for breast feeding and showed statistically that feeding with dried milks had no specific influence in preventing infectious diarrhoea.

Dr. C. E. CORLETTE raised the question of the seasonal differences of the birth-rate curve. The peak of the birth-rate curve was at different seasons in different parts of the world. This seasonal effect, however, ought to be taken into account in all comparisons of statistics of infective diseases. It should consequently be recognized that through differences in the seasonal birth-rate curve the proportion of infants at a given susceptible age, say, four months, would vary in different places. In comparing the death-rate from diarrhoea and other infantile diseases in England or in New York with those in Australia, differences in climate should be taken into consideration. There was no doubt that temperature and other meteorological conditions played a considerable aetiological part in microbial diseases. It was possible also that the prevalence of rickets in some communities was an aetiological factor in epidemic diarrhoea not present to an equal extent in other communities. It would seem that susceptibility to infantile disease was highly complex.

Dr. W. G. ARMSTRONG stated that Dr. Litchfield had presented a view which was of considerable importance. He, the speaker, had initiated a campaign to increase the amount of breast feeding. It was held that the frequency of breast feeding was a determining factor in infantile mortality. The records, however, did not fully bear out the contention that this was the only factor. The infantile mortality at one time in Australia was higher than that of England. When the social and sanitary services were introduced the rate diminished. In the year (1904) the system of water-borne sewerage was established in Sydney, cess-pits were abolished and an improved water supply was instituted. Prior to this, in 1886, the *Dairy Supervision Act* had to an important extent been responsible for the lowering of the infantile death-rate. Dr. Armstrong pointed out that the infantile mortality was the most delicate indication of the general mortality. There were, however, factors which had reference only to the death of infants. Newsholme had pointed out that in the siege of Paris, when the sanitary conditions were hopelessly bad, the infantile mortality sunk to a low level. The fall was attributed solely to almost universal maternal feeding of infant.

Returning to conditions in Australia, he found that from 1886 until 1904 the improvement followed without any special effort being made to reduce the death-rate of infants. The crusade in favour of breast feeding was then

begun in Sydney and the suburbs. It resulted in an increase of breast feeding from 72% to about 85%. Simultaneously there was a rapid fall in the infantile mortality.

Dr. Armstrong recognized that climatic conditions were of importance in this connexion. The mortality from respiratory diseases was higher in Victoria than in New South Wales, while the mortality from gastro-intestinal affections was higher in New South Wales than in Victoria. There were so many factors concerned in the infantile mortality that it was impossible to enunciate one thesis to cover all the facts. Dr. Armstrong claimed that breast feeding was certainly one of the most important measures to control the infantile mortality.

Dr. C. E. CORLETTE interposed a remark to the effect that all breast feeding was not beneficial. There was evidence to show that among the Filipinos breast feeding contributed to a high morbidity and mortality if the mothers were suffering from beri-beri. This produced fatal beri-beri very quickly in infants.

Dr. HARVEY SUTTON, O.B.E., held the opinion that an investigation into the many causes of infantile death was badly needed. The subject was complicated by a large number of variables. The question of the environment of the mother and of her baby was a very important one. It was essential to get hold of the mother and to secure her co-operation in any campaign. The infant could only be saved by the mother, but the mother could be helped and could be taught. Under war conditions it was easy to control the water supply and to deal with the fly peril. Similarly in regard to infants, measures should be established for the control of the milk supply and of the fly. The mortality from diarrhoeal diseases among artificially fed babies was about twenty times that among breast-fed babies. Dr. Harvey Sutton maintained that the medical and nursing professions were not preaching breast feeding. The family doctor should insist on the necessity of continuous breast feeding. Turning to the question of the part played by the fly, he suggested that Dr. Litchfield's rainfall charts could be interpreted as fly charts, the intensity of fly breeding being greatly influenced by dry and wet seasons. In the next place, the question of overcrowding was important. More information was required concerning the significance of overcrowding in its relation to infantile mortality. In Sydney there appeared to be no co-ordination of effort to control the number of persons living in small houses.

After dealing with the effect of maternal care on the morbidity and mortality of infancy, Dr. Harvey Sutton stated that the measurements taken of 200,000 school children showed that the Australian-born child was a better specimen according to the degree of its "Australian-ship." The third generation child was stronger and healthier than the second, while the second was stronger than the first.

Dr. R. A. R. GREEN held that medical practitioners were frequently responsible for the removal of the child from the breast. The students were not greatly helped by the teaching in their medical school. There were usually a few remarks on breast feeding and a long rigmorale on artificial feeding. It ought to be the other way about. Midwives and maternity nurses should be carefully instructed on the importance of proper feeding. Dr. Green regarded the first ten days as the most important in the child's life.

Dr. E. LUDOWICI said that the prevalent use of infants' foods was due to the practice of certain commercial firms in addressing pamphlets and samples to every mother immediately after the announcement of the birth had appeared in the papers. This active propaganda militated against breast feeding. Referring to the question of infantile mortality during or soon after birth, he expressed the opinion that the only remedy was the better education of the doctor in midwifery. This could only be effected by the University authorities, who had the power to set apart a proper period in the curriculum to allow of more prolonged practical instruction. Attempts had been made from time to time in maternity hospitals to provide additional clinical instruction, but had failed, as students would not give up the necessary time voluntarily in the middle of a crowded year. A fuller, practical knowledge would make the student alive to the dangers of undue haste and

would teach him to become a better judge as to the time when interference was required in the interests of the mother or of the child.

Dr. FOURNESS BARRINGTON explained that he gave his students detailed information concerning the proper methods of the feeding of infants at the breast. This subject belonged properly to obstetrics and should be included in the course. In his lectures to nurses on obstetrical nursing only breast feeding was mentioned.

Dr. Barrington expressed surprise that the reason for the high death-rate of infants during the first week of life had not been dealt with. There was no doubt that many children were still-born from head injuries received during labour. Many died in the first week of life from the same cause. Eardley Holland had recently written a very scientific and interesting paper on cranial stress in the fetus during labour and on the effects of excessive stress on the intra-cranial contents. He had discussed the whole question of cranial mechanics and had presented a general consideration of the strains and pressures exerted on the fetal skull, of head moulding and of the effect on the *dura mater* septa brought about by alterations in the shape of the head. He had dealt with the morbid anatomy of tears of the dural septa found in eighty-one fetuses and with the mode of origin and source of dural hæmorrhage. The majority of tears were in the *tentorium cerebelli*. One or both sides might be affected. The tears were either complete or incomplete. The fatal hæmorrhage was from one of the tributaries of the vein of Galen. He had further pointed out that, while the use of forceps saved many infantile lives, it was responsible for the unnecessary death of many others. The production of sufficient cranial stress to cause the *tentorium cerebelli* to tear meant that excessive force had been applied by the forceps or that it had been applied in the wrong diameter of the head. Neither should occur if the *os uteri* were fully dilated and if the occiput were directed forwards.

Extensive tearing of the *tentorium* was found in a large number of dead fetuses in breech presentations with intra-cranial hæmorrhage. Children born with "white" asphyxia and a beating heart after delivery with the breech presenting usually died of intra-cranial hæmorrhage. When there was a large or moderate hæmorrhage, it was reasonable to assume that the fetus had been killed by the hæmorrhage. Dr. Barrington considered that the position of the hæmorrhage was important. A small hæmorrhage confined beneath the *tentorium* was more dangerous than a larger one above that region. In conclusion, he pleaded for an accurate register of still-births and for the more frequent *post mortem* examination of infants to determine the cause of still-birth and death in the first week of life. He thanked Dr. Purdy for his most valuable and instructive paper.

At a relatively late hour Dr. PURDY rose to reply. He expressed his gratification at the way in which his paper had been received and at the excellence of the discussion. In reply to Dr. Litchfield, he referred to Newsholme's former contention that approximately 44% was the irreducible minimum of infantile mortality. He referred to the necessity of ante-natal work, especially in regard to syphilis, and described briefly the steps that were being initiated in Victoria (see THE MEDICAL JOURNAL OF AUSTRALIA, December 24, 1921, pages 598 to 603). In conclusion, he paid a tribute to Dr. Fourness Barrington's achievements in connexion with the prevention of still-births and of maternal morbidity and mortality.

#### MEDICO-POLITICAL.

A MEETING of the Victorian Branch of the British Medical Association was held on February 1, 1922, at the Walter and Eliza Hall Institute of Research in Medicine and Pathology, Melbourne Hospital, Dr. L. S. LATHAM, Vice-President, in the chair.

THE HONORARY TREASURER, Dr. C. H. MOLLISON, presented Financial Statements of the Victorian Branch, the Medical Society of Victoria and the Medical Agency.

The statements were received and adopted.

## VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

Revenue and Expenditure Account for Period from January 13, 1921, to January 12, 1922.

EXPENDITURE.			REVENUE.		
	£	s. d.		£	s. d.
To Medical Society of Victoria .. . . .	1,626	10 0	By Balance, January 12, 1921 .. . . .	304	0 7
" <i>The British Medical Journal</i> .. . . .	1,583	9 3	" Sales of Books, etc. .. . . .	12	5 7
" Postages, Duty Stamps, etc. .. . . .	54	15 0	" Subscriptions—		
" Printing .. . . .	68	4 10	Metropolitan Members ..	£2,181	9 6
" Stationery .. . . .	24	12 6	Country Members .. . . .	1,153	10 0
" Clerical Assistance .. . . .	2	16 6	Junior Members .. . . .	151	14 9
" Commission (New Members) .. . . .	4	10 0	Rebate, London .. . . .	1	12 0
" Advertising .. . . .	11	12 6		3,488	6 3
" Audit for 1920 .. . . .	3	3 0	Less Refund .. . . .	2	2 0
" Travelling Expenses .. . . .	1	0 3		3,486	4 3
" Rebates to Divisions .. . . .	45	0 0	" War Memorial .. . . .		2 17 0
" Sundries and Telephone Calls .. . . .	22	10 3	" Interest, Commonwealth Bank of Australia		0 8 1
" Bank Charges .. . . .	19	10 0			
" Electrical Replacements .. . . .	5	6 3			
" Balance .. . . .	332	15 2			
	<u>£3,805</u>	<u>15 6</u>		<u>£3,805</u>	<u>15 6</u>

## Balance Sheet as at January 12, 1922.

LIABILITIES.			ASSETS.		
	£	s. d.		£	s. d.
To Balance as above .. . . .	332	15 2	By Bank of Victoria, Limited .. . . .	229	15 2
			" Trustees, Organization Fund .. . . .	100	0 0
			" Petty Cash in Hand .. . . .	3	0 0
	<u>£332</u>	<u>15 2</u>		<u>£332</u>	<u>15 2</u>

Audited and found correct,  
J. V. M. Wood & Co., F.I.C.A.,  
Incorporated Accountants.  
Melbourne, January 31, 1922.

C. STANTON CROUCH,  
Secretary.  
C. H. MOLLISON,  
Honorary Treasurer.

## War Memorial Fund.

	£	s. d.		£	s. d.
To Payment, Web. Gilbert .. . . .	100	0 0	By Sundry Subscriptions .. . . .	600	0 0
" Balance, State Savings Bank .. . . .	500	0 0			
	<u>£600</u>	<u>0 0</u>		<u>£600</u>	<u>0 0</u>

## MEDICAL SOCIETY OF VICTORIA.

Revenue and Expenditure Account for Period from January 13, 1921, to January 12, 1922.

EXPENDITURE.			REVENUE.		
	£	s. d.		£	s. d.
To THE MEDICAL JOURNAL OF AUSTRALIA .. . . .	882	10 0	By Balance at January 13, 1921 .. . . .	113	10 3
" Salaries—			" Subscriptions, 1921 .. . . .	1,626	10 0
Secretary .. . . .	£412	0 0			
Assistant Secretary .. . . .	71	5 10			
Caretaker .. . . .	35	3 4			
Library Clerk .. . . .	41	0 0			
	559	9 2			
" Library: Journals and Binding .. . . .	68	11 2			
" Postages .. . . .	59	16 0			
" General Expenses .. . . .	3	19 0			
" Rates, Taxes and Insurance .. . . .	16	0 9			
" Light and Power .. . . .	5	6 6			
" Audit for 1920 .. . . .	4	4 0			
" Bank Charges .. . . .	1	5 3			
" Repairs .. . . .	10	2 6			
" Office Furniture .. . . .	1	5 0			
" Balance in Bank of Victoria, Limited .. . . .	127	10 11			
	<u>£1,740</u>	<u>0 3</u>		<u>£1,740</u>	<u>0 3</u>

Audited and found correct.  
J. V. M. Wood & Co., F.I.C.A.,  
Incorporated Accountants.  
Melbourne, January 31, 1922.

C. STANTON CROUCH,  
Secretary.  
C. H. MOLLISON,  
Honorary Treasurer.



## NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

COOK, ERROL AUFREDE, M.B., Mast. Surg., 1921 (Univ. Sydney), Royal Alexandra Hospital for Children, Camperdown.

THE undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

BYRNE, JOHN, M.B., Mast. Surg., 1921 (Univ. Sydney), 8, Griffith Street, Hurlstone Park.

GOLDSWORTHY, NEIL ERNEST, M.B., Mast. Surg., 1921 (Univ. Sydney), Sydney Hospital.

KEM YEE, JAMES FONG, M.B., Mast. Surg., 1921 (Univ. Sydney), Sydney Hospital.

PATRICK, JAMES KING, M.B., Ch.B., 1901; M.D., 1913 (Univ. Glas.), D.P.H., Roy. Coll. Phys. and Surg., Irel, 1910, 23, Elizabeth Street, Paddington.

## Correspondence.

## THE VENEREAL DISEASE PROBLEM.

SIR: Acting on the suggestion contained in the closing paragraph of the sub-leader in THE MEDICAL JOURNAL OF AUSTRALIA of February 18, 1922, I venture a criticism of some of the resolutions of the Venereal Diseases Conference held in Melbourne on February 1.

The effects of venereal legislation seem to have been discussed at great length, but can much or any results be expected from laws the penalties of which are not enforced?

Evasion of the *Venereal Act*, both in New South Wales and Victoria, is an every-day occurrence and many chemists and unqualified men openly supply drugs for and treat venereal diseases. Seldom do medical men notify patients who default from treatment. In spite of this, prosecutions under the *Venereal Diseases Act* are almost unheard of in either State.

The publication of the *Venereal Act* has certainly aroused public interest in venereal diseases, but I doubt if it has done much more.

I suggest that the causes of treatment being more commonly availed of during the past few years are:

(a) The provision of free clinics, thus bringing treatment within the range of even the poorest.

(b) The education of members of the Australian Imperial Force by bitter experiences; lectures by medical officers and others; various propaganda on the dangers, prevalence, effects and the modern treatment of gonorrhoea and syphilis and the subsequent passing on of this knowledge to their friends.

(c) The improved methods of treatment acquired by many doctors in the army. This refers particularly to the treatment of gonorrhoea.

The standard of cure recommended for male gonorrhoeas is most impracticable. Were we all to base our cures on these tests the majority of gonorrhoea patients at present under treatment could be given certificates of cure! To take each recommended test separately:

(a) Absence of all signs of inflammation for at least three months. Almost invariably two weeks' treatment will achieve the disappearance of all external signs of inflammation and, although the infection may still be active, a recurrence under treatment is rare. The recommendation condemns every acute case to three and a half months' observation, yet many cases are cured within one month. Will most men submit to being watched for two and a half months further?

(b) Microscopic examination of vesicular and prostatic expression to show absence of Neisser's diplococcus. Only those who have had occasion to examine many such slides will realize how rarely is the gonococcus identified, even in an active posterior infection. Obviously this is no test where the infection has only been anterior. With the experience of many thousands of such slides I have

learnt to place no significance on the absence of gonococci, but base my conclusions on the density or scantiness of the pus cells in the microscopic field.

(c) Complement fixation test. Admittedly the blood will not react to an anterior infection alone, nor does it give positive results in many posterior cases. Much importance cannot therefore be placed on the absence of a positive reaction. After vaccine treatment a positive result may be obtained for from four to six months after cure. Would it be fair or practicable to withhold a certificate of cure for this period because it had been deemed necessary to treat the patient with vaccine?

(d) Provocative vaccine. In an experience of many hundreds of vaccine injections only rarely has a provocative effect on the symptoms and local signs been apparent.

May I suggest as a standard of cure:

(i.) Absence of a discharge or "tear" after urine is held six to eight hours.

(ii.) Absence of pus threads from such urine.

(iii.) Prostate, vesicles and Cowper's glands not to show signs of inflammation on a rectal examination.

(iv.) Presence of nothing more pathological than very scanty pus cells in a slide of the expression of prostate, vesicles and Cowper's glands.

(v.) Absence of inflammation or pathological appearances in the whole urethra, as seen through the urethroscope.

(vi.) The above tests should still be negative after provocation by alcoholic drinks and injection of the urethra with AgNO<sub>3</sub> (1 in 3,000).

Cases which will not pass (i.) and (ii.) are met with occasionally. Although cured, a mucoid "tear" remains and at least six slides of this "tear" should be examined and show absence of gonococci and nothing more than scattered pus cells. The threads in the urine should give a similar microscopic finding. Cultural tests of the urine will clinch the certainty of cure where there is a doubt remaining in these cases with a non-infective gleet.

Yours, etc.,

ALEX. GOLDSTEIN.

Moffitt Chambers, 233, Elizabeth Street,  
Sydney, February 25, 1922.

SIR: Referring to the in THE MEDICAL JOURNAL OF AUSTRALIA, February 18, 1922, of the Public Health Conference, I desire to ask one or two of questions having regard to suggestions made under "Educational": (iii.) "That the conference is of the opinion that immediate self-disinfection is a useful auxiliary measure to disinfection at approved prophylactic depôts as a means of diminishing the chance of acquiring infection."

(a) Would such a system of treatment, more especially when the public, men and women, would acquire the art of its use, be instrumental or play any part in the prevention of pregnancy? or (b) Would it enhance the desire for sexual intercourse and the putting of the same into execution?

I also desire to call attention to the fact that the Archbishop of Canterbury, when speaking to the subject in the House of Lords, has stated that, in his opinion, he considered that the medical and moral aspects of the case were inseparable.

Yours, etc.,

RICHARD JONES.

110, Collins Street, Melbourne.  
(Undated.)

## Obituary.

REGINALD PATRICK MACGILLICUDDY.

It was with deep regret that the friends and colleagues of Reginald Patrick MacGillicuddy learned of his untimely death.

Reginald Patrick MacGillicuddy was born at Richmond, Victoria, on July 24, 1891, and was the son of Dr. and Mrs. D. F. MacGillicuddy, of Richmond, Melbourne. He received his early education at Xavier College, Kew, where his genial qualities and his prowess in athletics gained him

a high place in the esteem of his fellows. He achieved a distinction coveted by many public school boys, in that he represented his school in the triple contest, football, cricket and rowing; he was conspicuous for the manly and sportsmanlike character he displayed on the field.

Reginald MacGillicuddy entered upon his medical studies at the Melbourne University in 1911 and graduated as M.B., B.S., in 1917. While at the University, he devoted much time and energy to the welfare of the Medical Students' Society.

Shortly after completing his course, Reginald MacGillicuddy was attached for home service to the McLeod Military Hospital and later served with the Australian Imperial Force on the hospital ship *Kanowna* between Australia and Egypt. For some time prior to his death he was attached to the Repatriation Department in Brisbane, where he proved a splendid organizer and an efficient officer.

During his medical course Reginald MacGillicuddy represented the University in senior (League) football and was a popular member of the Amateur Sports Club. He played a good game of golf and tennis and took a keen interest in ice-skating, in which he represented Victoria in interstate matches.

During the last few years his health had been very indifferent. He died on January 26, 1922, at Cunnamulla, Queensland, whither he had retired for a complete rest in order to benefit his failing health. A widow and small daughter survive him.

### Books Received.

A COMPEND ON BACTERIOLOGY, INCLUDING PATHOGENIC PROTOZOA, by Robert L. Pittfield, M.D.; Fourth Edition; 1922. Philadelphia: P. Blakiston's Son & Co.; Crown 8vo., pp. 297, with four plates and eighty-two other illustrations. Price: \$2.00 net.

ANIMAUX VENIMEUX ET VENINS, par Dr. Marie Phisalix avec une préface par Professeur Laveran; Tomes Premier et Second; 1922. Paris: Masson et Cie; Royal 8vo., pp. 656 and 864 respectively, with (collectively) 521 figures in the text, nine plates and eight coloured plates. Price: Fr. 120 net.

ANNUAL REPORT OF THE SURGEON-GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES FOR THE FISCAL YEAR 1920. Washington: Government Printing Office; Demy 8vo., pp. 391.

LESSONS ON TUBERCULOSIS AND CONSUMPTION FOR THE HOUSEHOLD, by Charles E. Atkinson; M.D.; 1922. New York and London: Funk & Wagnalls Company; Post 8vo., pp. 470, with twenty-one illustrations. Price: \$2.50 net.

MENTALLY DEFICIENT CHILDREN: THEIR TREATMENT AND TRAINING, by G. E. Shuttlesworth, B.A., M.D., etc., and W. A. Potts, M.A., M.D., etc.; Fifth Edition; 1922. London: H. K. Lewis & Company, Limited; Crown 8vo., pp. 320, with twenty-nine illustrations, including twenty-one plates. Price: 10s. 6d. net.

THE TREATMENT OF COMMON FEMALE AILMENTS, by Frederick John McCann, M.D. (Edin.), M.R.C.P. (London), F.R.C.S. (England); 1922. London: Edward Arnold & Company; Demy 8vo., pp. 152. Price: 8s. 6d. net.

### Medical Appointments.

Dr. J. R. HOBBS (B.M.A.) has been appointed District Medical Officer and Public Vaccinator at Mullewa, Western Australia.

The appointment of Dr. W. C. SWEET as Quarantine Officer has been gazetted.

Dr. J. LOCKHART GIBSON (B.M.A.) has been appointed a Trustee of the Boys' Grammar School at Rockhampton, Queensland.

Dr. F. R. HONE has been appointed Honorary Assistant Bio-Chemist at the Adelaide Hospital.

### Medical Appointments Vacant, etc..

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii.

IPSWICH HOSPITAL, QUEENSLAND: Junior Medical Officer.

LEONORA DISTRICT HOSPITAL, WESTERN AUSTRALIA: Resident Medical Officer.

NEGLECTED CHILDREN'S DEPÔT, ROYAL PARK, VICTORIA: Medical Officer and Superintendent.

### Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30-34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmaln United Friendly Societies' Dis- pensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phoenix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Pro- prietary, Limited Manchester Unity Independent Order of Oddfellows Mutual National Provident Club National Provident Association
QUEENSLAND: Hon- orary Secretary, B. M. A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Insti- tute Hampden District Hospital Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 3, North Terrace, Adelaide	Contract Practice Appointments at Ren- mark Contract Practice Appointments in South Australia
WESTERN AUS- TRALIA: Honorary Secretary, 6, Bank of New South Wales Chambers, St. George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVI- SION): Honorary Secretary, Wellin- gton	Friendly Society Lodges, Wellington, New Zealand

### Diary for the Month.

- MAR. 18.—Eastern District Medical Association, New South Wales.  
MAR. 22.—South Sydney Medical Association, New South Wales.  
MAR. 23.—Brisbane Hospital for Sick Children: Clinical Meeting.  
MAR. 24.—Queensland Branch, B.M.A.: Council.  
MAR. 28.—New South Wales Branch, B.M.A.: Council.  
MAR. 29.—Victorian Branch, B.M.A.: Council.  
MAR. 30.—South Australian Branch, B.M.A.: Branch.  
MAR. 31.—New South Wales Branch, B.M.A.: Annual Meeting.  
APR. 4.—New South Wales Branch, B.M.A.: Council.  
APR. 5.—Victorian Branch, B.M.A.: Branch.  
APR. 7.—Queensland Branch, B.M.A.: Branch.  
APR. 11.—New South Wales Branch, B.M.A.: Ethics Committee.  
APR. 12.—Western Australian Branch, B.M.A.: Council.  
APR. 12.—Melbourne Paediatric Society.  
APR. 13.—Victorian Branch, B.M.A.: Council.  
APR. 13.—Brisbane Hospital Clinical Society: Meeting.  
APR. 14.—Queensland Branch, B.M.A.: Council.  
APR. 14.—South Australian Branch, B.M.A.: Council.

### Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)